Westronic

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PC Wesmaint II

994-T055 Rev E
September 2007

Technical Manual

Technical Manual

Westronic Systems, Inc.
a Mediation Technology company

NOTICE

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REGULATORY INFORMATION

WARNING: This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the installation manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15, Subpart J of the FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of the equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

CAUTION: Changes or modifications not expressly approved by Westronic could void the user's authority to operate this equipment.

The FCC label can be found on the right side of the shelf assembly. The label includes the following information:

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

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Revision History

Rev Level	Issue Date	Reason for Reissue
A	March, 1999	First Release
B	June, 1999	Format Changes (Word – FrameMaker), Logo Update
C	February, 2002	Dialout Feature Addition
D	June, 2005	Updated address and fax
E	September, 2007	Updated address

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1 Introduction

1.1 General

This document describes the newest version of PC Wesmaint used with the WS2000 product line. The new PC Wesmaint is a software application that can replace the Wesmaint hardware and the DOS PC Wesmaint. As a user-friendly Windows®-based software application, the newest PC Wesmaint provides a faster and more convenient method to initialize and manage (that is, monitor and configure) the WS2000 SmartScanner.

PC Wesmaint uses a PC running Windows® rather than DOS to provide a compatible Harris Wesmaint user interface. PC Wesmaint offers the following functions/features:

- Windows® 95/98, NT, Me®, 2000 compatible
- Mouse, keyboard, and hotkey driven
- Tool tip help
- Versatile communications port selection
- Automated Windows installation procedure
- Enhanced Wesmaint maintenance interface
- Graphical representation of the hardware Wesmaint
- Direct menu access Upload and Download capability

1.2 Program Overview

***Note**: Only one form (or secondary window) can display at any one time. If you click on any part of a primary window (such as the **Display Menu** or the **Command Menu**) that lies beneath a secondary window, that secondary window closes. Any supporting forms (auxiliary windows), such as the File dialog form or message boxes, are controlled by the form that called them.*

The PC Wesmaint application program has the following:

- Primary windows (**Display Menu**, **Command Menu**, and **Wesmaint Panel** are accessed via the **Main Menu**)
- Secondary windows (dialog boxes accessed via the **Display Menu** and **Command Menu**)
- Auxiliary windows (supporting forms or dialog boxes accessed through the secondary windows)

If you select the **Display Menu** or **Command Menu** buttons while in the **Main Menu**, the appropriate **Display Menu** or **Command Menu** dialog box appears. Both dialog boxes have command buttons to return to the **Main Menu** or to move to the nonactive menu (that is, if you are in the **Display Menu** dialog box and press the **Command Menu** button, the **Command Menu** dialog box appears).

Each dialog box has a unique set of command/form buttons to access forms for each of the WS2000 menu functions. When you click on a command/form button, the appropriate form appears with relevant properties for that particular function. These activities query the WS2000 for the appropriate menu item and gain access to the function.

Depending on the form (that is, display or command), different processes execute to close the form. The processes primarily involve closing the form. However, when closing **Command Menu** forms, Wesmaint goes through a check of global variables to ensure that you have not inadvertently forgotten to save modifications to the configuration.

1.3 System Requirements

- Pentium® –class processor operating at 200 MHz
- Windows® 95/98, NT, Me®, or 2000 operating system
- 64 MB RAM
- 6 MB of available hard disk space
- RS-232 serial port
- Monitor screen resolution of 800X600

1.4 Installation

The installation program automates the installation of the PC Wesmaint application. To install the application, insert the installation disk and execute the *setup.exe* program located on the disk. The PC Wesmaint setup program creates a program group called `WS-Tools` and adds a PC Wesmaint program item to the group. If the target PC has other programs distributed by Westronic, the setup program adds PC Wesmaint to the existing `WS-Tools` program group containing those programs.

2 Overview

The DOS version of the PC Wesmaint application has one screen that displays two windows: one to display input from the WS2000 and the other to display information you send to the WS2000 (that is, the keys that you press). Most of the command keys map to function keys displayed at the bottom of the screen. The function keys must be interpreted for each command. No type of mouse support is available.

In contrast, the Windows-based PC Wesmaint provides a friendly, easy-to-use Wesmaint user interface for the WS2000 SmartScanner. With the exception of the E2A database file utilities, the application not only provides the same functionality as the DOS version, but also offers the look and usability of the hardware version of Wesmaint. In this scenario, you use the graphic version of the Wesmaint hardware, which includes point-and-click capability using the mouse or, using the keyboard, to use hotkeys to operate buttons on the control panel. Besides the Wesmaint panel graphic interface, PC Wesmaint enhances each of the Wesmaint maintenance functions into a Graphical User Interface (GUI). Section 3 discusses the enhanced maintenance interface.

By using a graphical interface that resembles the existing Wesmaint hardware panel, PC Wesmaint eliminates the use of function keys (F1 - F10) to operate the different keypad commands, such as Help, Enter, DSPY, and CMD. Instead, PC Wesmaint simulates an actual portable or rack-mounted version of Wesmaint with additional mouse capability, the keyboard, and hotkeys, where applicable. Besides the Wesmaint panel graphic interface, you have the option of using the enhanced configuration tools to configure the WS2000 SmartScanner. The interface automatically enters all Wesmaint keystrokes that are necessary to access and configure a WS2000 remote scanner.

The Wesmaint user interface contains the following:

- Main menu
- Wesmaint panel
- Direct menu access

2.1 Main Menu

The **Main Menu** (Figure 1) appears when the PC Wesmaint application first starts. This window, similar to a title page, allows you to view the Wesmaint program name and version. From the window, you can:

- Configure COM ports and WS2000 protocol
- Access the graphic display of the hardware panel (**Wesmaint Panel**)

- Access the enhanced Wesmaint GUI (**Display Menu** and **Command Menu**)
- Execute a direct access menu database command (**Upload DB** or **Download DB**)

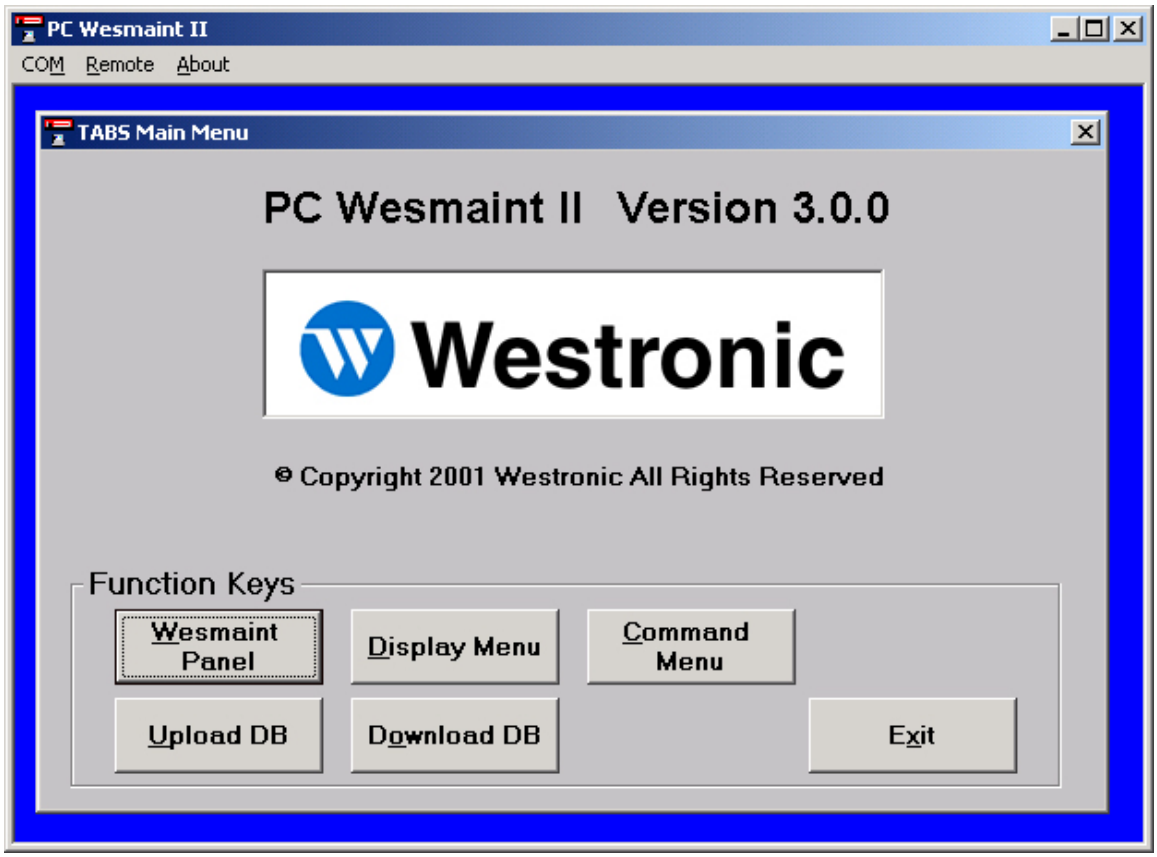

Figure 1 Main Menu

The window also has an **Exit** buton to close the program. You can reposition the **Main Menu** window within the monitor screen, but you cannot resize it.

You can set the communications properties, such as the PC serial port number (1 - 4), baud rate, parity and data bits, by selecting **COM\Properties**. The **COM** command resides in the menu bar at the top of the **Main Menu** window. The default values for the communication properties are as follows:

- Port 1
- 9600 Baud
- Even parity
- Seven data bits
- One stop Bit

If the communications port is in use or is invalid when you start PC Wesmaint, Wesmaint displays an error message indicating a communication error, sets the communications port to **None**, and disables the following function keys: **Wesmaint Panel**, **Display Menu**, **Upload DB**, and **Download DB**. To ensure that

you select another communications port, the function keys remain disabled until you select a valid port. If the default values change, an error message displays to indicate that the current setting is possibly incorrect for direct connection to a WS2000 SmartScanner.

Note: The installation provides program items for each supported protocol in the `WS-Tools` start menu.

Besides the communications port setting, you can also change the PC Wesmaint protocol using the **Remote** command located next to **COM** in the menu bar at the top of the window. The protocol setting (for example, **E2A MASTER, E2A SLAVE, TABS, E2A/TABS**) allows the PC Wesmaint to operate under conditions necessary to configure the type of WS2000 connected.

E2A MASTER is the default protocol. However, you can modify the command line argument to set PC Wesmaint to any of the protocols on startup. The following are command line arguments:

- **E2A MASTER** = E2A
- **E2A SLAVE** = SLAVE
- **TABS** = TABS
- **E2A/TABS** = E2A/TABS

The addition of any of these strings to the end of the command line invokes PC Wesmaint with that protocol type setting. For example:

```
“C:\Program files\WS-Tools\PC Wesmaint II\Wsmnt98.exe” TABS
```

2.2 Wesmaint Panel

The Wesmaint Hardware Panel interface (Figure 2) contains the same two keypads as the hardware Wesmaint. One keypad panel has buttons representing numbers 0 - 9 and alpha characters A - F. You can activate each button by pressing the associated keyboard key or by using the mouse to point and click. The other keypad panel has buttons for the following:

DSPY (Display)	**CMD** (Command)	**HELP**	**SEL** (Select)
PT (Point)	**DATA**	**CLR** (Clear)	**ENTER**
UP	**RUN**	**ON**	**YES**
DWN (Down)	**STOP**	**OFF**	**NO**

Activate each button using the keyboard, the mouse to point and click, or the *hotkey*. The hotkey is achieved through the key combination of ALT + the underlined letter. For example, to select HELP, press ALT + H. Using the keyboard, you can also select the following:

CLR = SHIFT + DELETE **ENTR** = SHIFT + ENTER

UP = SHIFT + ↑ **DWN** = SHIFT + ↓

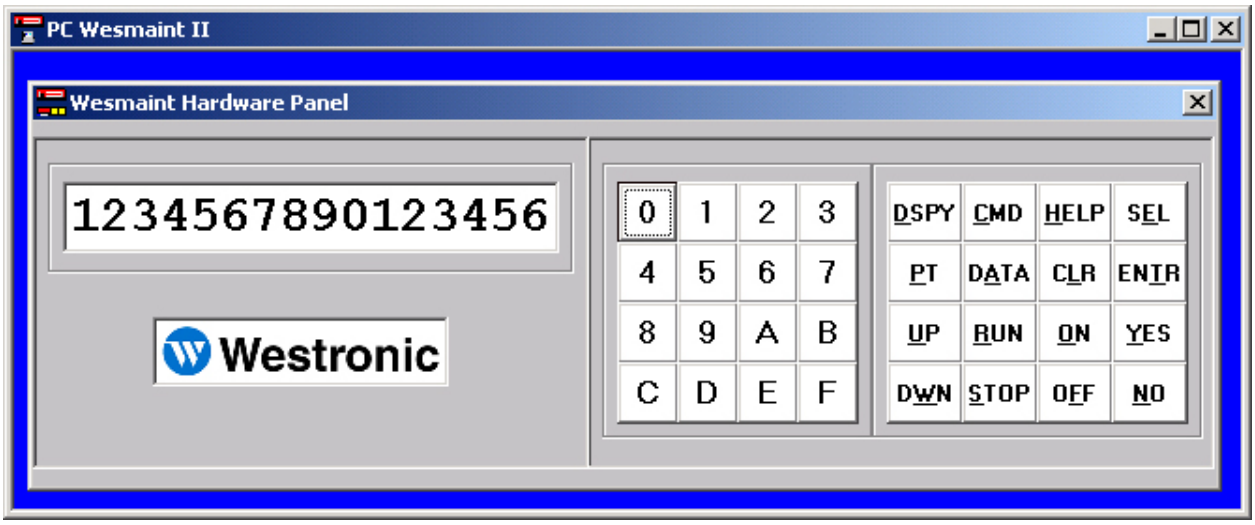

Figure 2 Wesmaint Hardware Panel

Just like the physical Wesmaint hardware panel version, the **Wesmaint Hardware Panel** contains a display that allows you to monitor the communications between the PC and WS2000 remote. The **Wesmaint Hardware Panel** window also contains a general use ☒ button to return to the **Main Menu** and Wesmaint Help. You can move the panel around the scope of the monitor screen, but you cannot resize the window.

2.3 Direct Menu Access

The direct menu access function allows WS2000 configurations (databases) to transfer between a WS2000 remote and PC Wesmaint. This function is similar to existing upload/download database capabilities. However, instead of uploading a binary database image, direct menu access transfers a configuration derived directly from the Wesmaint maintenance configuration menus. The direct menu access function allows configurations to transfer from older WS2000 SmartScanners that currently have no download or upload capability. When transferred from the WS2000 remote to the PC, the configurations are stored in a readable text, tab-delimited, formatted file for archive purposes and can be viewed with any spreadsheet application software.

2.4 Upload DB

The direct menu access upload operation (**Upload DB**) scans through **Command Menu** items looking for configuration information data. After finding a configuration menu item, direct menu access selects the item and transfers the information into PC RAM. The configuration data in PC RAM is then written to a preselected filename. You can retrieve the filename using standard Windows dialog file access prompts and displays.

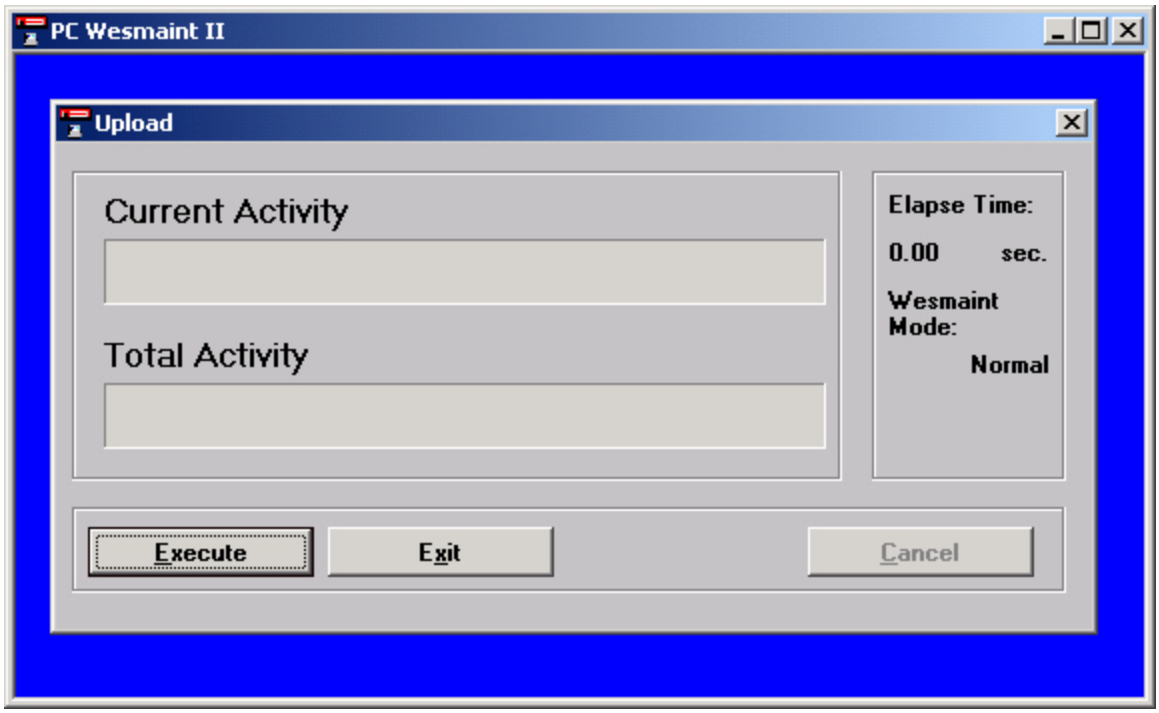

Figure 3 Upload Dialog Box

2.5 Download DB

The direct menu access download operation (**Download DB**) functions just like the upload operation, but in the reverse direction (that is, from PC file to WS2000). After the WS2000 is placed in the configuration mode, each menu item is selected and the data written to the WS2000. The download operation outputs appropriate keystrokes to configure the WS2000 with the new configuration. The keystrokes are the same keystrokes that would be manually entered if using the Wesmaint panel to configure the WS2000. After completing

the download operation, the WS2000 returns to normal mode. Figure 4 shows the **Download** dialog box.

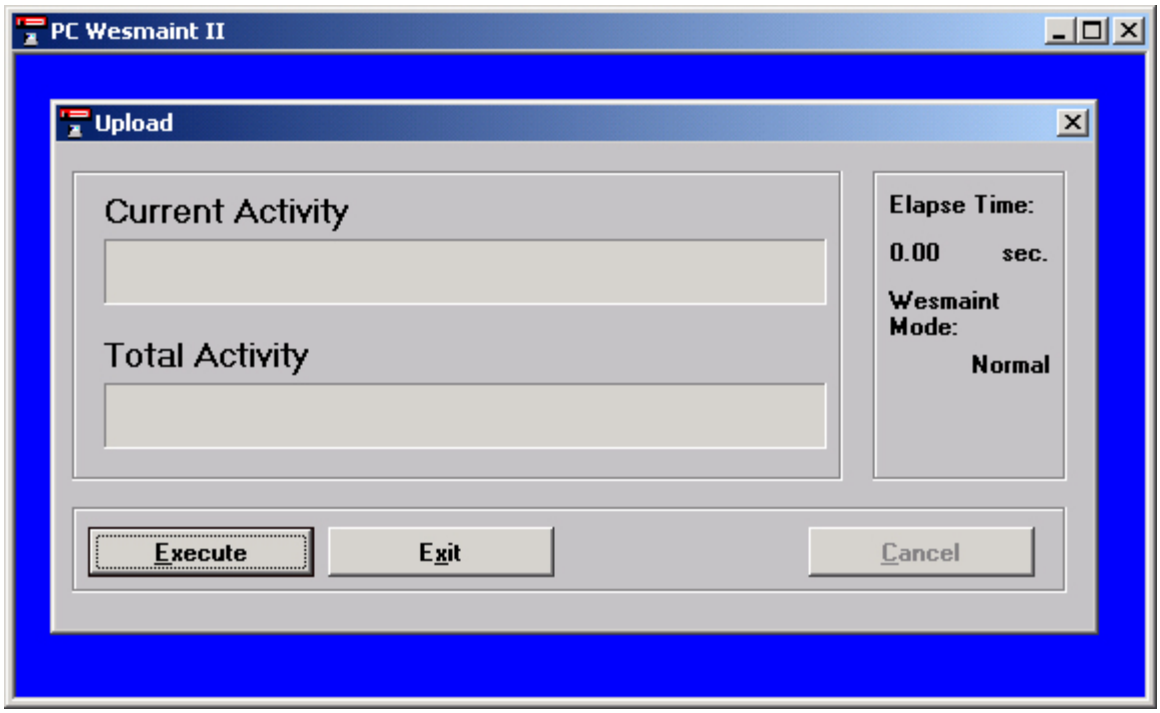

Figure 4 Download Dialog Box

3 Enhanced Wesmaint Maintenance Interface

3.1 Introduction

The DOS version of PC Wesmaint required you to use the Up/Down arrow keys to traverse the Command or Display Menu functions. Windows-based PC Wesmaint eliminates this with a graphic interface that displays each of the menu items on a button for your selection. Your selection of one of the buttons automatically outputs the needed keystrokes to access the function. The buttons are grouped into two function categories, Display and Command, just as they are currently organized in the WS2000. Each menu is accessible directly from the **Display Menu**, or the **Command Menu** windows. The **Display Menu** and the **Command Menu** windows provide access back to the **Main Menu** or exit the program.

Access to the **Display Menu** and **Command Menu** windows is through the **Main Menu** window. Both windows display all WS2000 remote command menu items read from a WS2000. Each menu item has its own button, enabling you to view all WS2000 remote menu items relevant to display or command functions at a glance. When you click the mouse on any of the buttons, a separate window for each WS2000 menu item displays. For example, if you select the **Current Status** button from the **Display Menu**, the **Current Status** display form appears.

Buttons in the **Display Menu** and **Command Menu** windows may differ with WS2000 Remote type(for example, TABS, TABS A&P, E2A, and so on). Thus, a TABS A&P WS2000 remote displays an analog and pulse accumulator button that does not display if the software is strictly TABS.

3.2 Display Menu

The following describes the WS2000 menu items that appear on buttons within the **Display Menu** window (Figure 5) when detected by the software. To access the **Display Menu**, you must connect a WS2000 to the Wesmaint serial interface and select the **Display Menu** button from the **Main Menu**. All windows then process data directly from the WS2000.

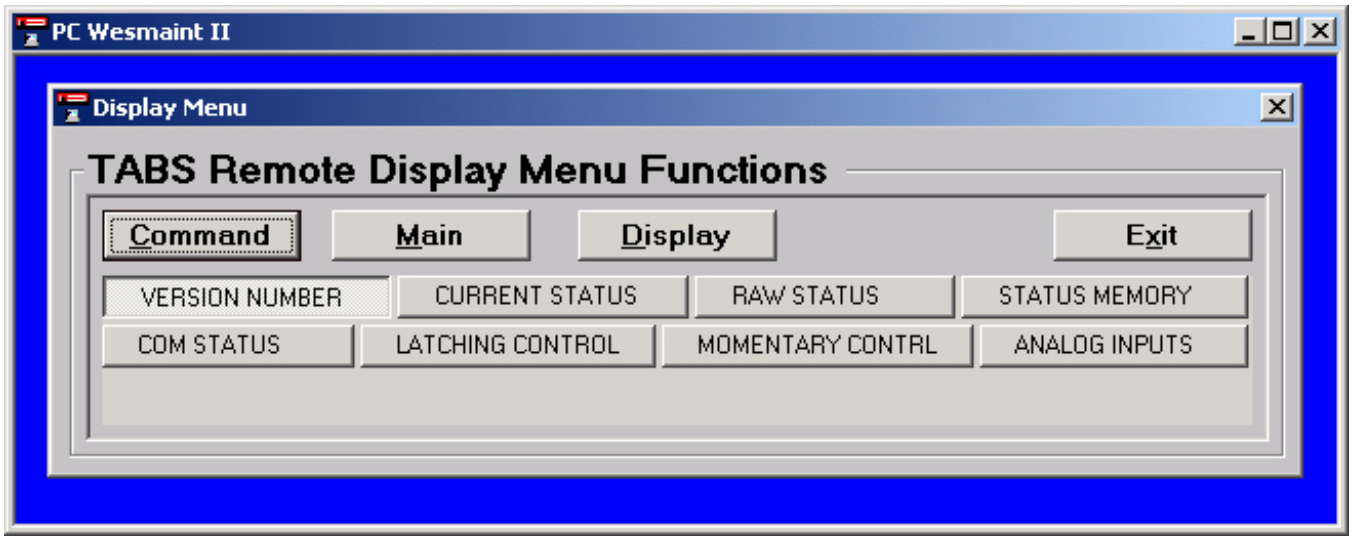

Figure 5 Display Menu

3.2.1 VERSION NUMBER

The **VERSION NUMBER** dialog box (Figure 6) presents a view of the current WS2000 software version in a small textbox display. The dialog box also contains command keys (**Forward, Reverse, Stop**, and **Start**) to alter the version scroll.

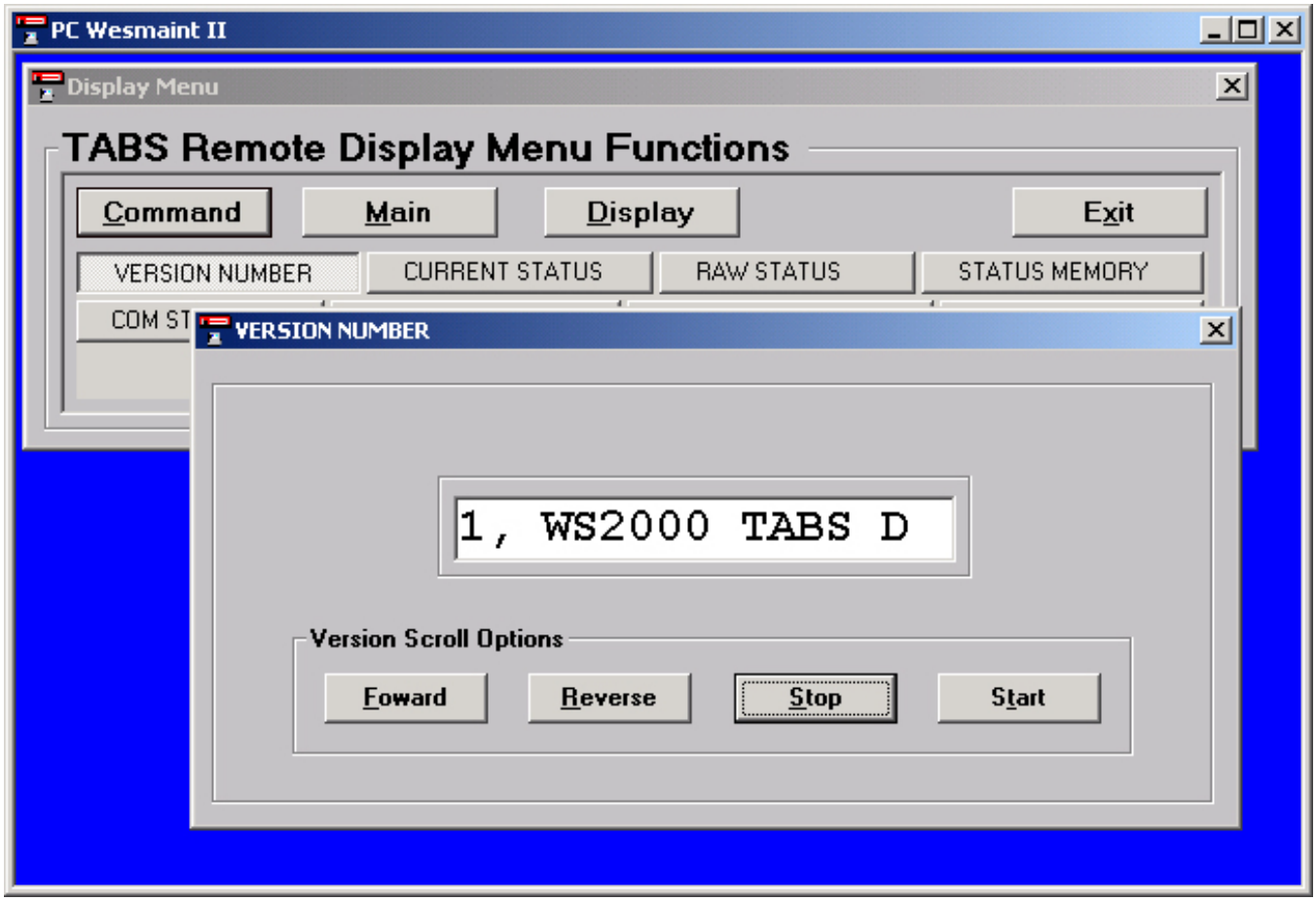

Figure 6 Version Number Dialog Box

3.2.2 CURRENT STATUS

The **CURRENT STATUS** dialog box (Figure 8) serves to view the status of input data as seen by the master station.

The dialog box contains a textbox window to view the current status points. The view extends to encompass the entire 64-bit range of a WS2000 display. Previous Wesmaint versions display only eight bits because of LED display restraints. To view the remaining bits, you must scroll through eight 8-bit displays. However, the new PC Wesmaint constantly retrieves each character, one-at-a-time, and updates the 64-bit display. The textbox containing the 64 bits is sectioned off to denote the bit number, thus enabling you to determine the exact bit needed at a glance.

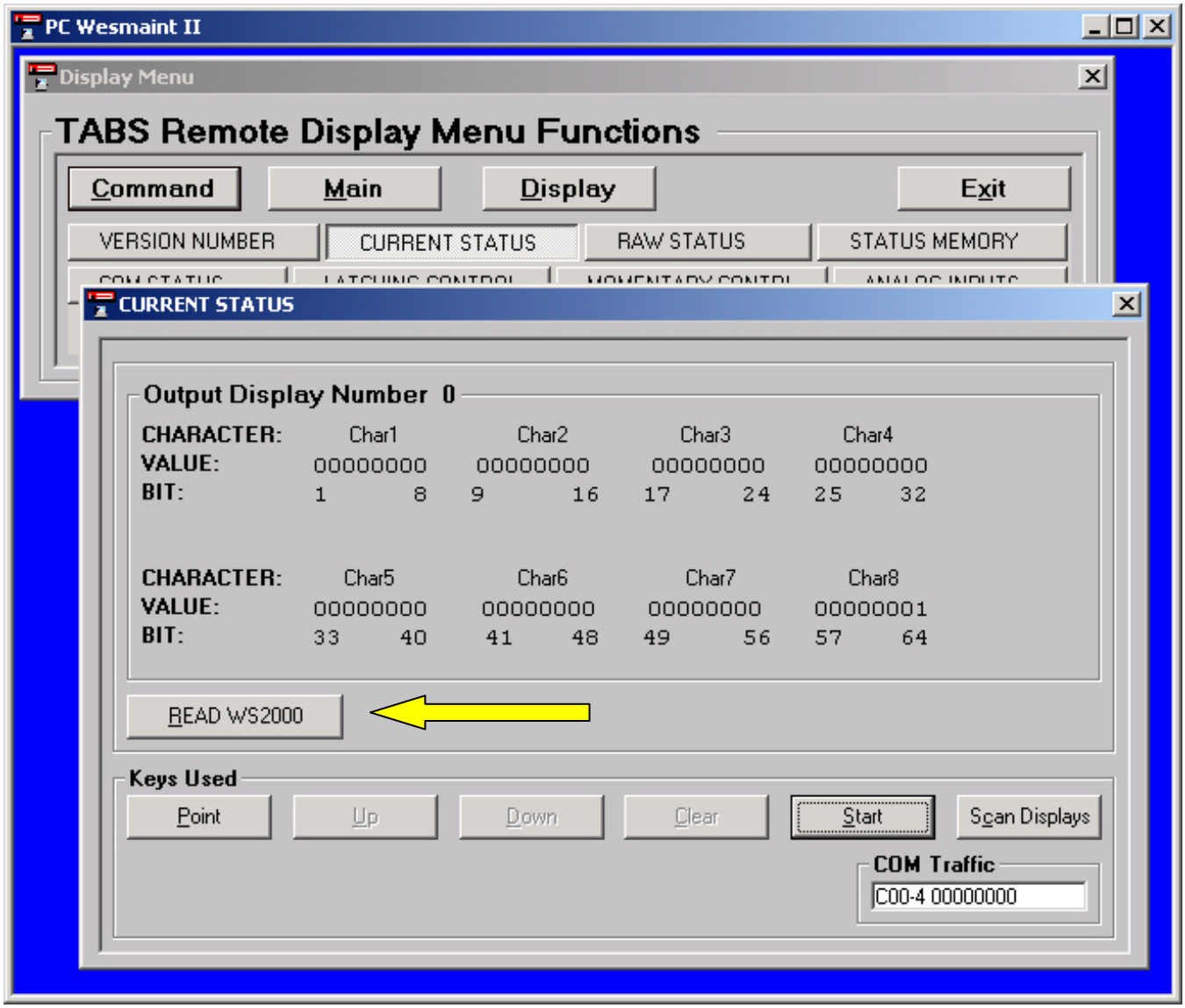

Figure 7 READ WS2000 Command Button

***Note**: The **READ WS2000** button is not visible when a configuration has already been read by another dialog box within the **Command Menu** or **Display Menu**.*

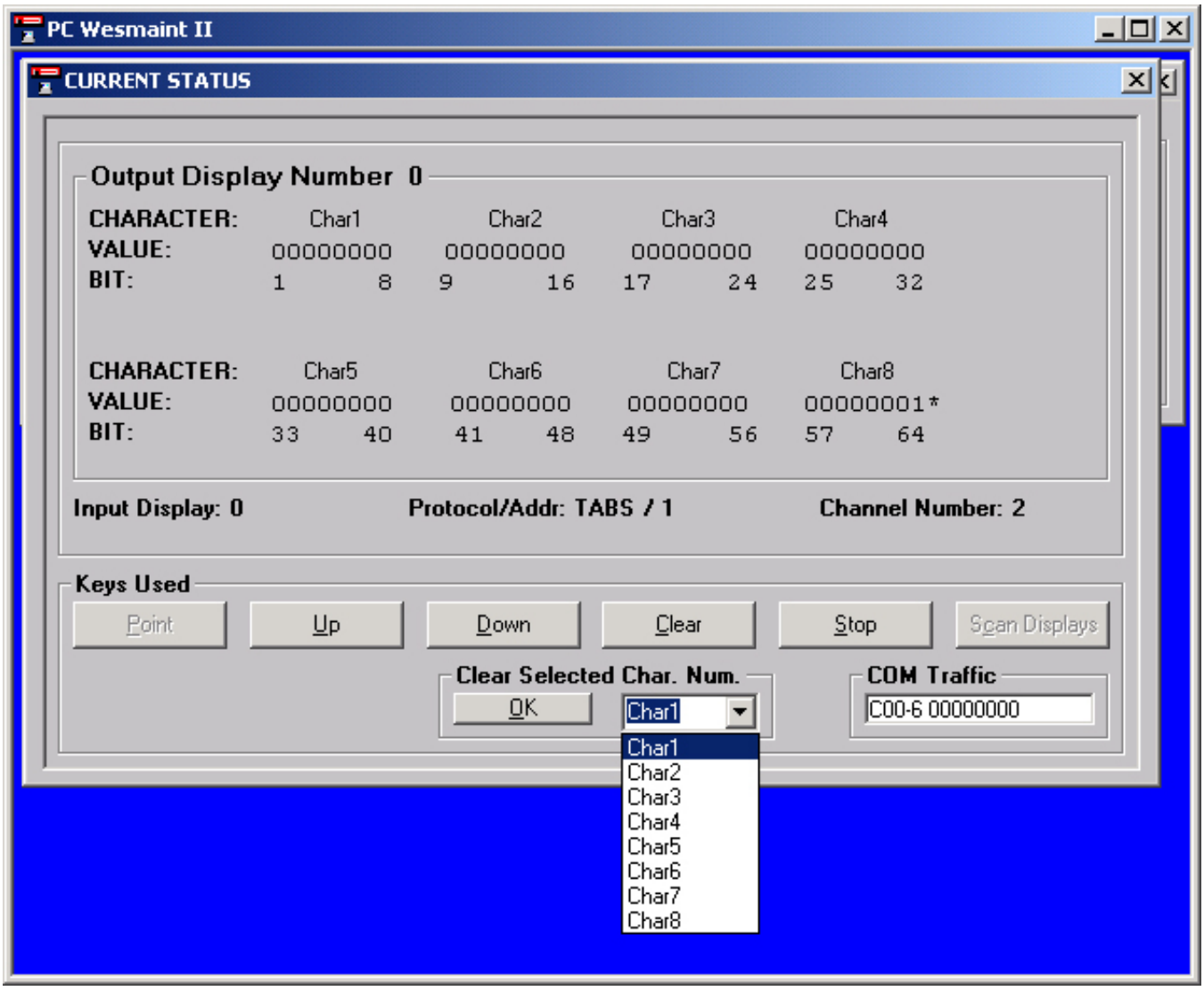

Figure 8 Current Status Dialog Box

Below the display view is a description indicating the source of the input display and the exact output display. You can change from the current display to another by directly entering an output display number or by scrolling through each display one-at-a-time. The result is the same as if you were pressing the **Point, Up**, or **Down** buttons.

In a separate window accessed from the dialog box is a group of standard buttons from which you can exit and return to the **Main Menu**, **Display Menu**, or **Command Menu**.

3.2.3 RAW STATUS

The **RAW STATUS** dialog box (Figure 9) serves to view the status of input data before any attribute properties are processed.

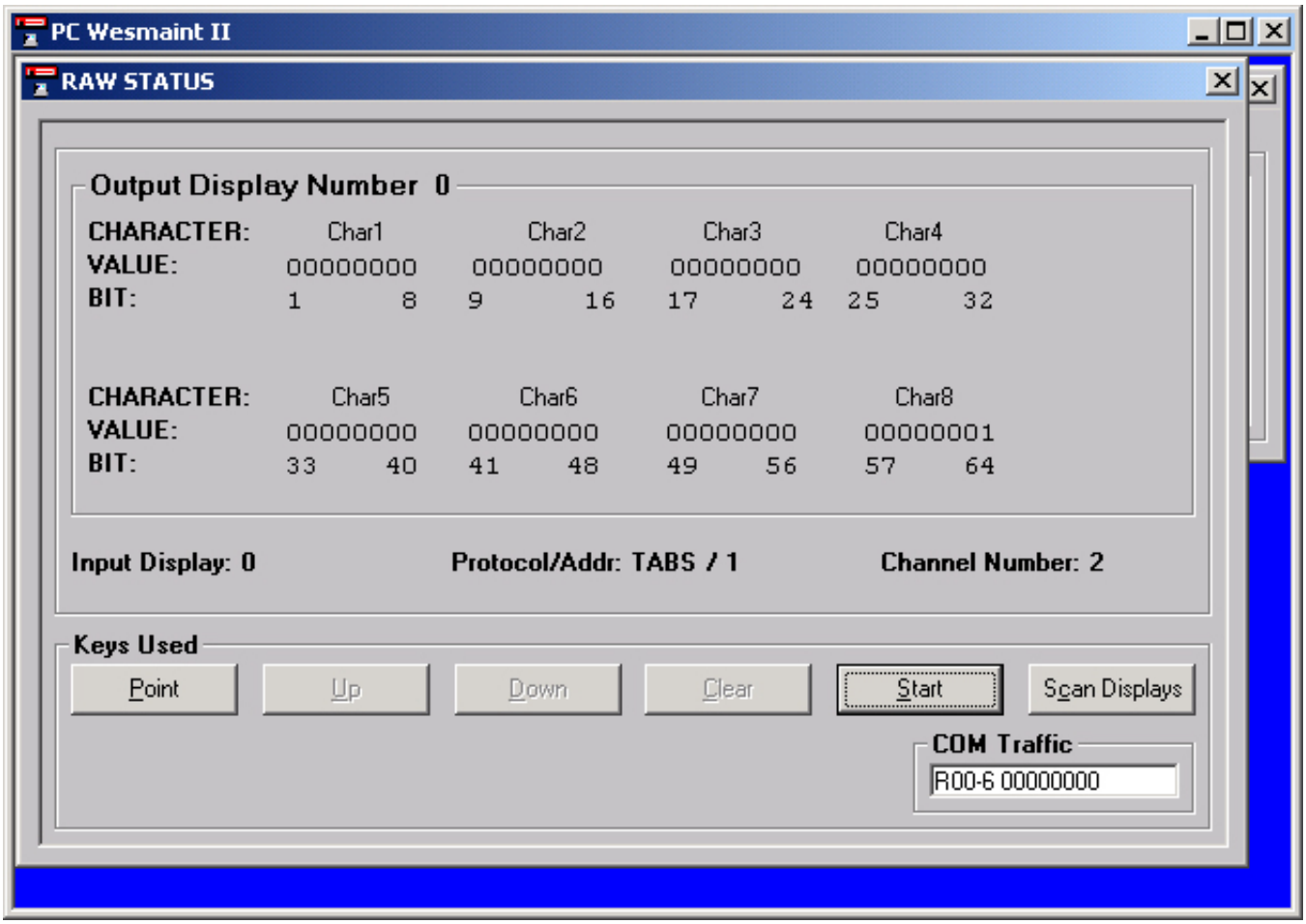

Figure 9 Raw Status Dialog Box

The dialog box contains a textbox window to view the raw status points. The view extends to encompass the entire 64-bit range of a WS2000 display. Previous Wesmaint versions display only eight bits because of LED display restraints. To view the remaining bits, you must scroll through eight 8-bit displays. However, the new PC Wesmaint constantly retrieves each character, one-at-a-time, and updates the 64-bit display. The textbox containing the 64 bits is sectioned off to denote the bit number, thus enabling you to determine the exact bit needed at a glance.

Below the display view is a description indicating the source of the input display and the exact output display. You can change from the current display to

another by directly entering an output display number or by scrolling through each display one-at-a-time. The result is the same as if you were pressing the **Point, Up**, or **Down** buttons.

In a separate window accessed from the dialog box is a group of standard buttons from which you can exit and return to the **Main Menu, Display Menu**, or **Command Menu**.

3.2.4 STATUS MEMORY

The **STATUS MEMORY** dialog box (Figure 10) serves to view points that have a set status memory bit. A set memory bit indicates that a data point having the memory attribute has experienced an unreported change of state.

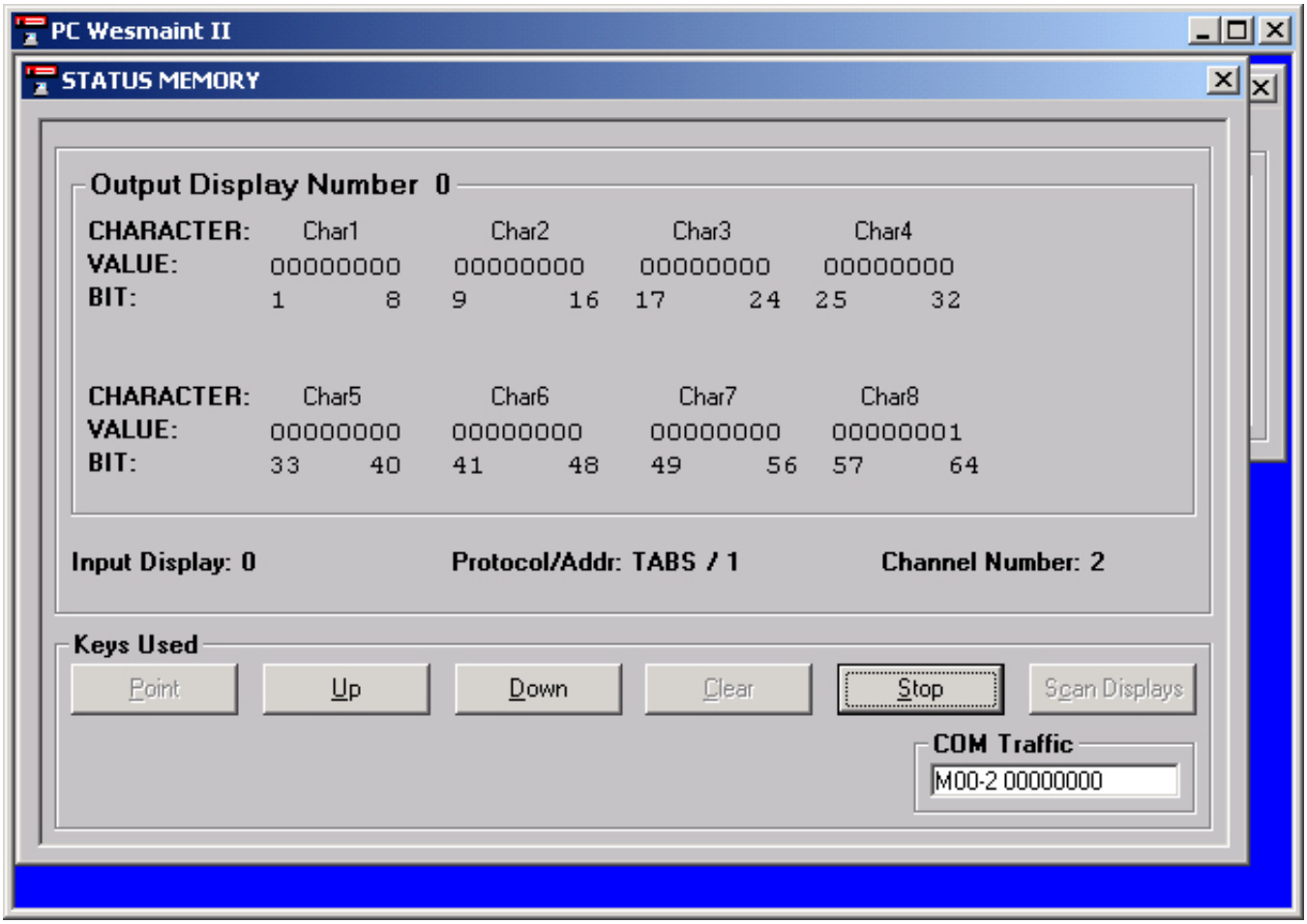

Figure 10 Status Memory Dialog Box

The dialog box contains a textbox window to view the status memory points. The view extends to encompass the entire 64-bit range of a WS2000 display. Previous Wesmaint versions display only eight bits because of LED display restraints. To view the remaining bits, you must scroll through eight 8-bit

displays. However, the new PC Wesmaint constantly retrieves each character, one-at-a-time, and updates the 64-bit display. The textbox containing the 64 bits is sectioned off to denote the bit number, thus enabling you to determine the exact bit needed at a glance.

Below the display view is a description indicating the source of the input display and the exact output display. You can change from the current display to another by directly entering an output display number or by scrolling through each display one-at-a-time. The result is the same as if you were pressing the **Point, Up**, or **Down** buttons.

In a separate window accessed from the dialog box is a group of standard buttons from which you can exit and return to the **Main Menu, Display Menu**, or **Command Menu**.

3.2.5 COM STATUS

The **COMMUNICATIONS STATUS** dialog box (Figure 11) enables you to view the following concerning the WS2000 remote:

- Status of each active serial channel
- Total number of bytes (transmit and receive)
- Errors (parity, overrun, frame, and timeout)

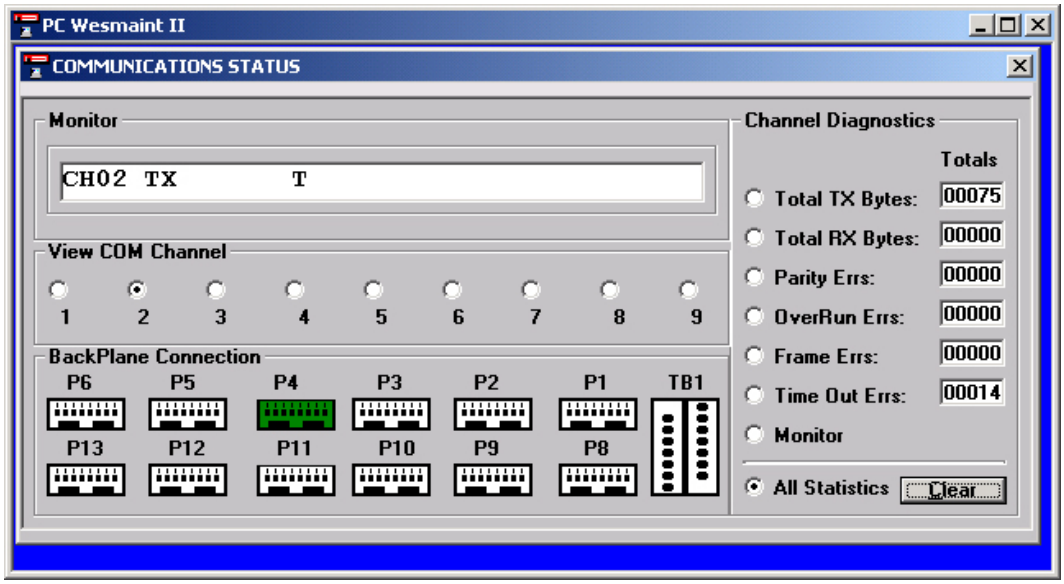

Figure 11 Communication Status Dialog Box

*Note: Selecting **All Statistics** slows PC Wesmaint down, making WS2000 appear irregular. Best results occur when you view individual statistics.*

The dialog box uses a textbox window to display the serial channel that is transmitting and receiving data. Choose which channel to view by selecting a radio button (1 - 9) in the **View COM Channel** group. The **Channel Diagnostics** group has several radio buttons allowing you to select a particular statistic or all statistics (see note). The statistics regarding total transmit/receive bytes or parity, overrun, frame, or timeout errors display in the same group next to the selected statistic label. The **BackPlane Connection** group displays a representation of the actual WS2000 SmartScanner backplane communication connectors (**P1 - P12** and **TB1**). As you select channels in the **View COM Channel** group, Wesmaint highlights the associated connector or, if you do not know the channel number, select the connector of choice and the system changes to that channel.

3.2.6 LATCHING and MOMENTARY CONTROLS

The controls feature operates discrete outputs in latching or momentary mode or sends a latching/momentary control command over a data collection port to monitored equipment. The same dialog box is used for latching (Figure 12) and momentary (Figure 13) control.

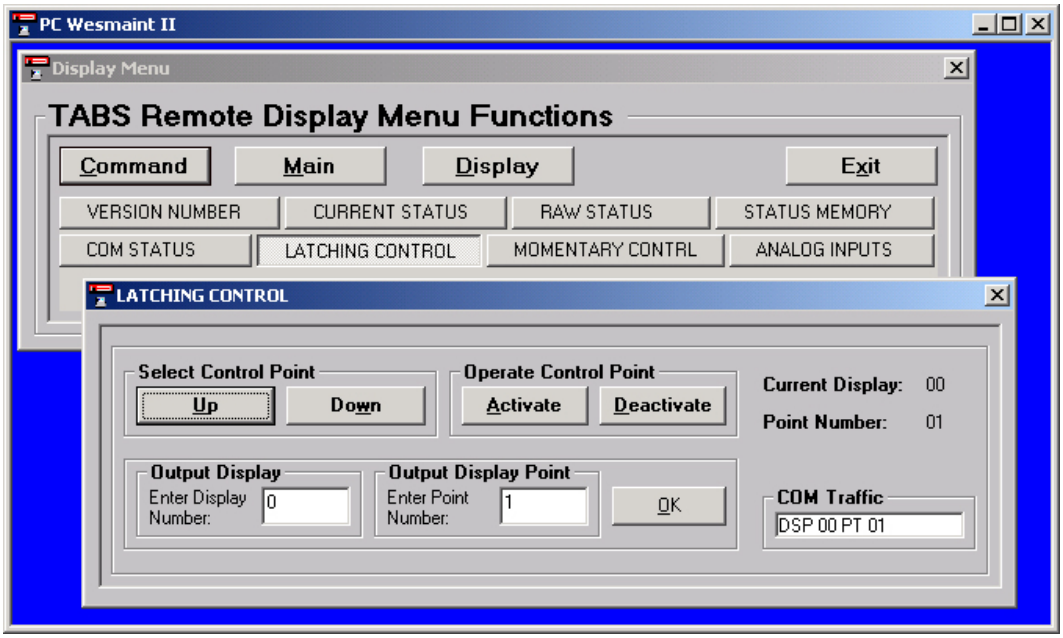

Figure 12 Latching Control Dialog Box

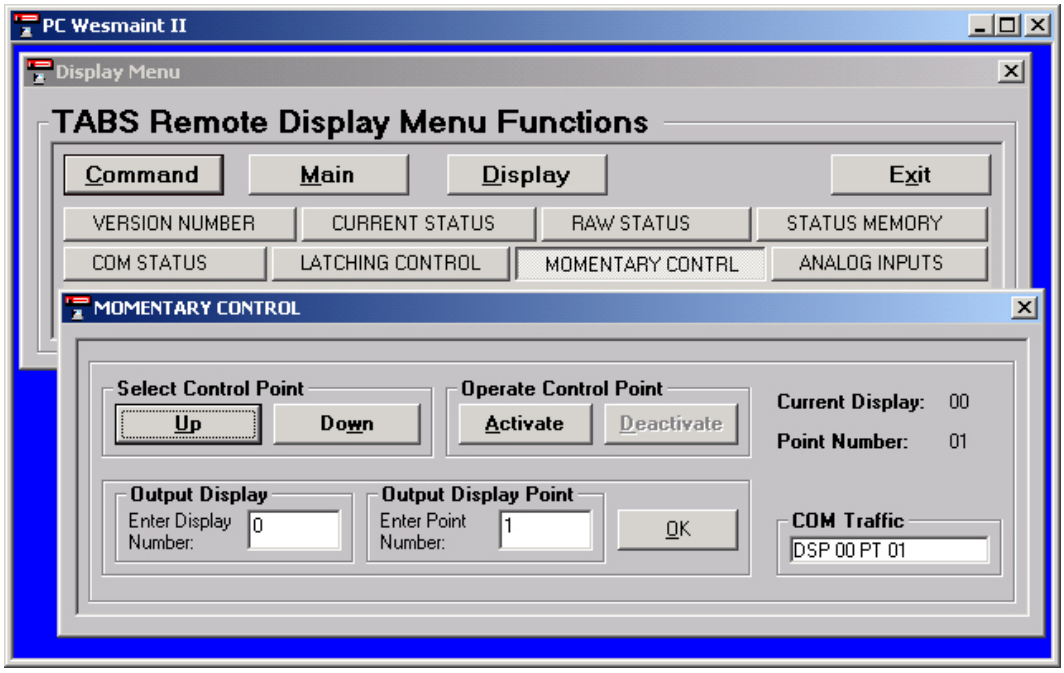

Figure 13 Momentary Control Dialog Box

The controls dialog box has a textbox to display data received from the WS2000 remote. The box has **Output Display** and **Output Display Point** groups in which you can directly enter the display number and display point or, if you are so inclined, manually increment through the discrete display points using the **Up** and **Down** buttons in **the Select Control Point** group. A second group, **Operate Control Point**, contains buttons to activate/deactivate the control command, depending on whether the box is used for latching or momentary control. In a separate window accessed from the dialog box is a group of standard buttons from which you can exit and return to the **Main Menu, Display Menu**, or **Command Menu**.

3.2.7 ANALOG INPUTS

The **ANALOG INPUTS** dialog box (Figure 14) displays eight analog input channels at a time. Eight channels are the total number of analog channels possible for one of three (0 - 2) possible expanders.

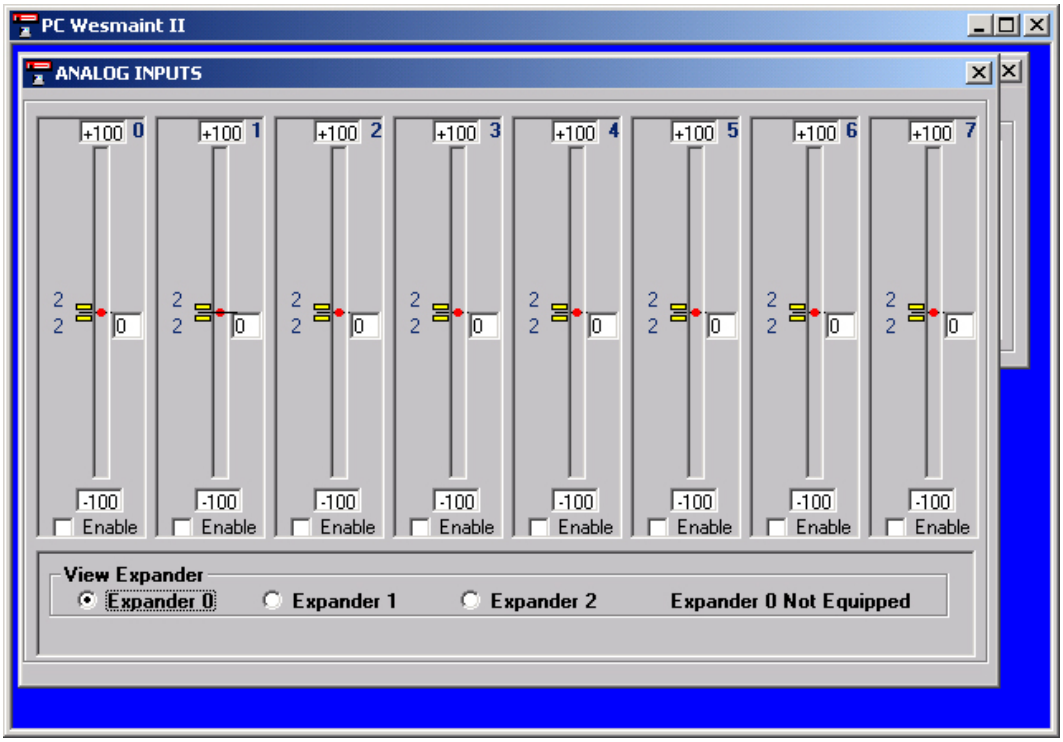

Figure 14 Analog Inputs Dialog Box

Each analog channel appears as a vertical bar graph with a zero value located in the middle of the bar. The bar graph has upper (+100) and lower (-100) range limit values at the top and bottom, respectively. The actual analog value, which is read directly from the WS2000, appears in a textbox on the right side of the bar graph. The analog value represents a percentage (maximum 100%) of the full scale value of +100 or -100.

On the left side of the bar graph are *deadband* markers that represent the deadband window set in the configuration. The markers simulate what is occurring in the WS2000 and follow the bar value accordingly; however, the deadband lags somewhat from the actual value as PC Wesmaint cycles through the input channels. The deadband window is set approximately around the current analog value with the markers remaining in these positions until the analog value becomes greater than or less than the deadband window marker

values. After the analog value exceeds the deadband window, the window resets around the current analog value where it remains until the process of exceeding the window occurs again.

Below each bar graph is an **Enabled** checkbox to show whether or not the analog channel is turned On. (The checkbox only serves to show the channel status.) Enabling the analog channel occurs through the **Command Menu\Configure Analogs** dialog box (Figure 14) in *CONFIG ANALOGS*) only. You can view other expander analog channels by selecting the appropriate expander radio button in the **View Expander** group just below the analog meters.

3.2.8 ACCUM INPUTS

The **ACCUMULATOR INPUTS** dialog box (Figure 15) views the accumulator input channel data for SEVERE, DEGRADED, ERRORED, UNAVAILABLE, and TOTAL errors. The data appears in five individually color-coded boxes for each channel. All eight (0 - 7) channels are visible. To distinguish the various counters, the boxes have the following color code:

- DEGRADED = yellow
- SEVERE = red
- ERRORED = green
- UNAVAILABLE/TOTAL = light gray

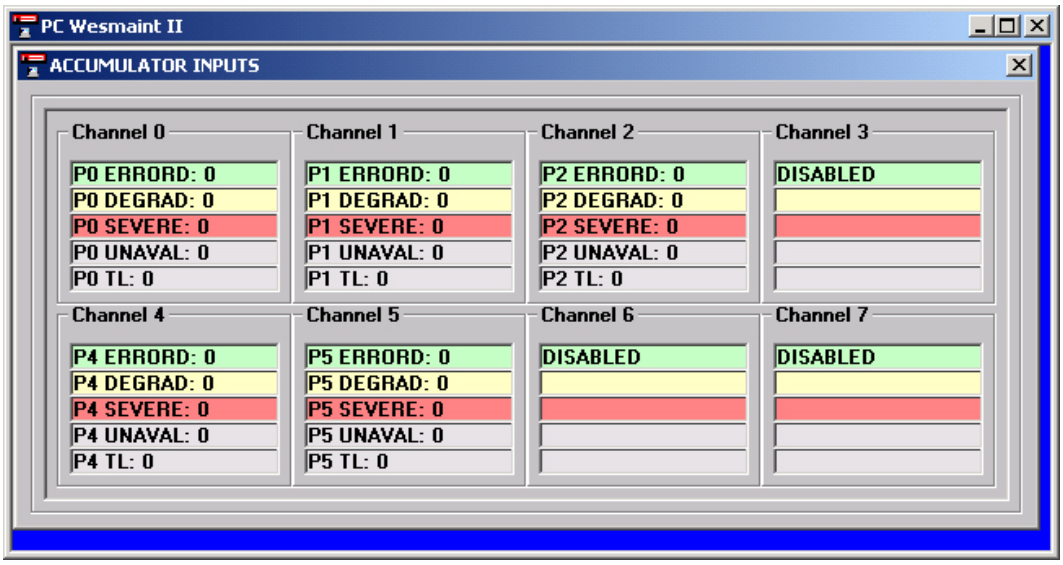

Figure 15 Accumulator Inputs Dialog Box

3.3 Command Menu

The following describes the WS2000 menu items that appear on buttons within the Command Menu window (Figure 16) when detected by the software. To access the **Command Menu**, select the **Command Menu** button from the **Main Menu**.

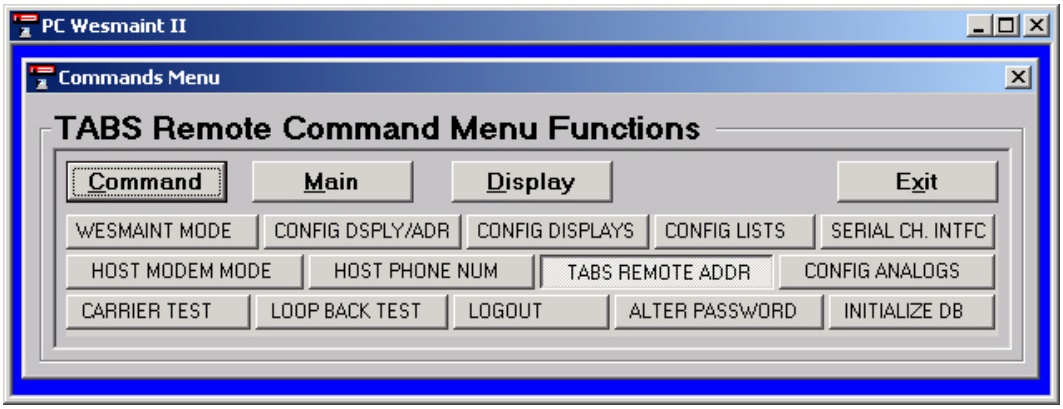

Figure 16 Command Menu

Note: *After you select a TABS protocol and open a TABS configuration file, you cannot switch to another protocol or file until you return to the* ***Main Menu****.*

Before allowing you access to the menu, the Wesmaint checks the communications port for a connection to the WS2000. If the WS2000 is not connected, Wesmaint builds its own **Command Menu** based on the remote protocol you have selected in the **Main Menu** and acquires any configuration modifications from configuration files in an offline mode

Entry into the **Command Menu** while in offline mode brings up the **File** dialog box, at which point you must enter the filename of a configuration file for viewing or alteration. Allowing a TABS protocol file to immediately set up the type of TABS configuration menu needed (TABS, TABS A&P, or TABS A&P PLUS) is especially important. For example, a TABS A&P file does not display the menu item **CONFIG DSPLY/ADR** or, if a TABS file, none of the A&P menu items display.

Buttons in the **Command Menu** operate in a similar manner to those in the **Display Menu** with the following exception. You can now choose to read the configuration from the WS2000 (assuming a connection) or from a WS2000 configuration file. That is, after selecting a menu item, press a button to read the configuration from the WS2000 or from a configuration file before making any modifications. Thereafter, whether the configuration is derived from a file or the WS2000, you do not need to read the configuration again at the beginning of each form. The write keys (**WRITE WS2000** or **WRITE FILE**) are enabled only after successful completion of a modification.

Note: *The **WRITE WS2000** button brings up another dialog box (**WS2000 Write Options**) in which you must select a write option: only the modifications made or all of the currently displayed form parameters (Write All). The option Write All does not write the entire configuration, but instead writes only the data presented in the dialog box that displays the **WS2000 Write Options** dialog box.*

The **WRITE WS2000** button on each **Command Menu** form places WS2000 into the configuration mode to configure the parameters of the current form only. For example, after you modify the display form (**CONFIG DISPLAYS**) and press the **WRITE WS2000** button, alteration occurs only on the displays form parameters and not on any of the other configuration parameters read in. In contrast, however, the **WRITE FILE** button writes the entire configuration to the file.

When saving a configuration to a file, Wesmaint creates a backup file (*filename.BAK*), where filename is the name of the file previously selected in the **File** dialog box. Configuration files currently having an existing backup file are overwritten. When the backup file is write protected, Wesmaint displays an error message and cancels the **File** dialog.

3.3.1 WESMAINT MODE

The **WESMAINT MODE** dialog box (Figure 17) allows you to change the WS2000 operating mode between **Normal** and **Config**.

Although the WS2000 can be set to a particular mode, maintenance functions that require the WS2000 to be in configuration mode automatically make the change to configuration mode for you. However, for safty reasons, two maintenance functions require the user to manualy change the Wesmaint mode to **Config**. They are **LOOP BACK TEST** and **INITIALIZE DB**. Use the **WESMAINT MODE** dialog box to perform this.

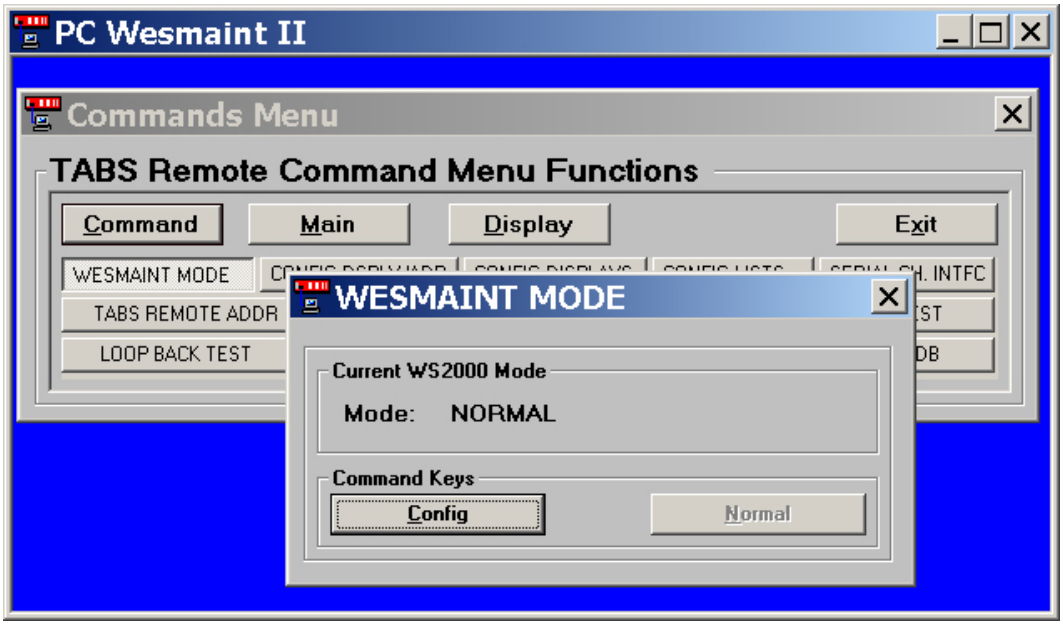

Figure 17 Wesmaint Mode Dialog Box

3.3.2 CONFIG DSPLY/ADR

The **Configure Displays/Addresses** dialog box (Figure 18) aids configuring the maximum number of displays and addresses. The dialog box contains a standard textbox to display the WS2000 data. Within the **Select Max Displays/Addresses** group are two radio buttons allowing you to toggle the maximum number of displays/addresses from 100/32 to 90/72 and back again. The box brings up **YES** and **NO** keys to confirm the selected display/address option. The **Configuration Commands** group has buttons to read from/write to the WS2000 or a configuration file. Another group accessed from the dialog box contains the menu buttons to return to previous dialog boxes.

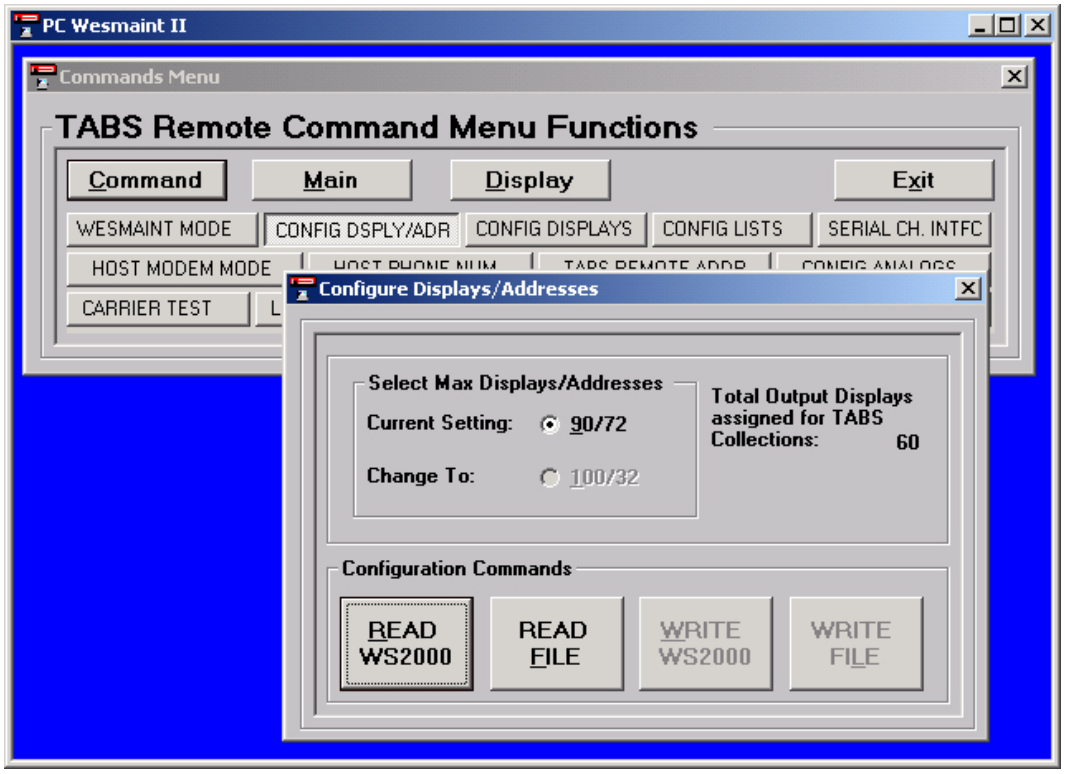

Figure 18 Configure Displays/Addresses Dialog Box

3.3.3 CONFIG DISPLAYS

The **CONFIGURE DISPLAYS** dialog box permits you to view or alter output display configurations. The dialog box reads the currently configured displays from the WS2000 remote and places the data in a table format to provide you with a full view of all configured displays. Figure 19 presents an example of

TABS displays; the **CONFIGURE DISPLAYS** dialog box for E2A (Figure 20) has different options.

The data table has eight columns, as follows:

- Column one (**Out Dsply**) indicates the output display number. Displays 1 - 4 are not configurable in E2A protocol.
- Column two (**Source**) indicates the source protocol. Each cell in the column has a pull-down list for your selection. The options with TABS protocol are TABS, TBOS, SPARE, or DISC (Discrete). In E2A protocol, the options are MASTER, SLAVE1, SLAVE2, SLAVE3, or SPARE.
- Column three (**Serial Chnl**) indicates the serial channel source. Each cell in this column has a pull-down list for your selection. With TABS protocol, options are Channels 2 - 9. In E2A protocol, options are DISC (Discrete) and Channels 1 - 9.
- Column four (**Source Addr**) indicates the required source address, which you enter directly into the cell. E2A options are WPIB00 - WPIB07 if the **Serial Chn**l is DISC.
- Column five (**In Dsply**) indicates the input display number, which you enter directly into the cell.
- Column six (**List**) indicates the process list selected for the associated output display. Each cell has a pull-down list containing the available process lists found in the WS2000 output display configuration.

You can directly enter a list number, but if the list number does not exist in the pull-down list, you receive an error message that indicates the list possibly does not exist. If you keep the list number and the download operation actually finds that the list does not exist, Wesmaint records the error message and output display number and displays them to you when the download function ends.

- Column seven (**Scan**) indicates the scan list number for the output display, which you input directly for each display.
- Column eight (**Altd**) indicates which displays have changed or are altered in any way. When you modify any cell of an output display row, the cell in the last column of the same row changes from a blank to the letter A to indicate an alteration.

The **CONFIGURE DISPLAYS** dialog box contains buttons to write the configuration to WS2000 and to read the configuration from the WS2000.

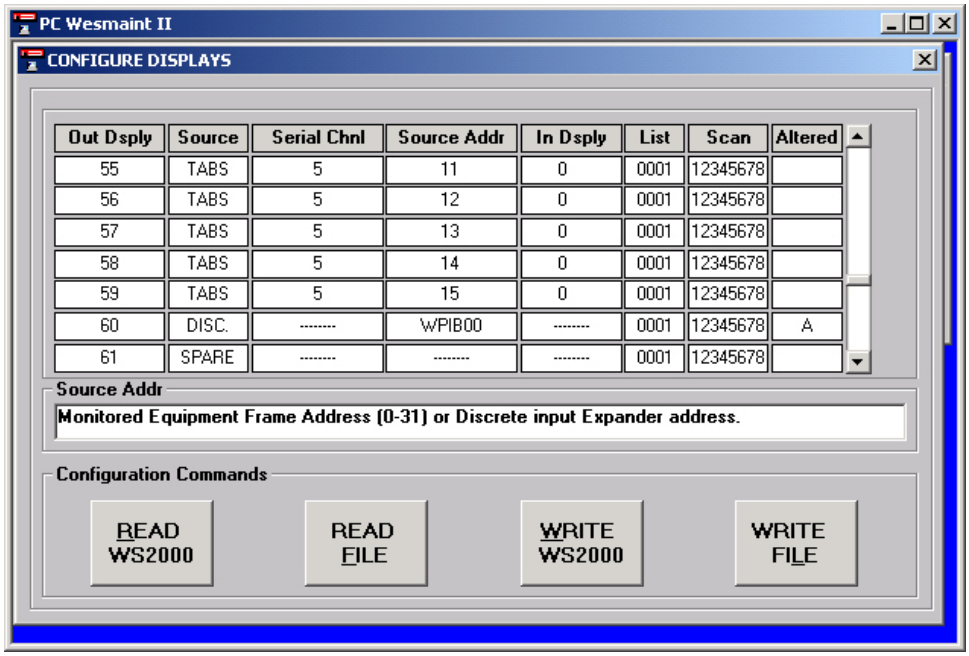

Figure 19 Configure Displays Dialog Box - TABS Protocol

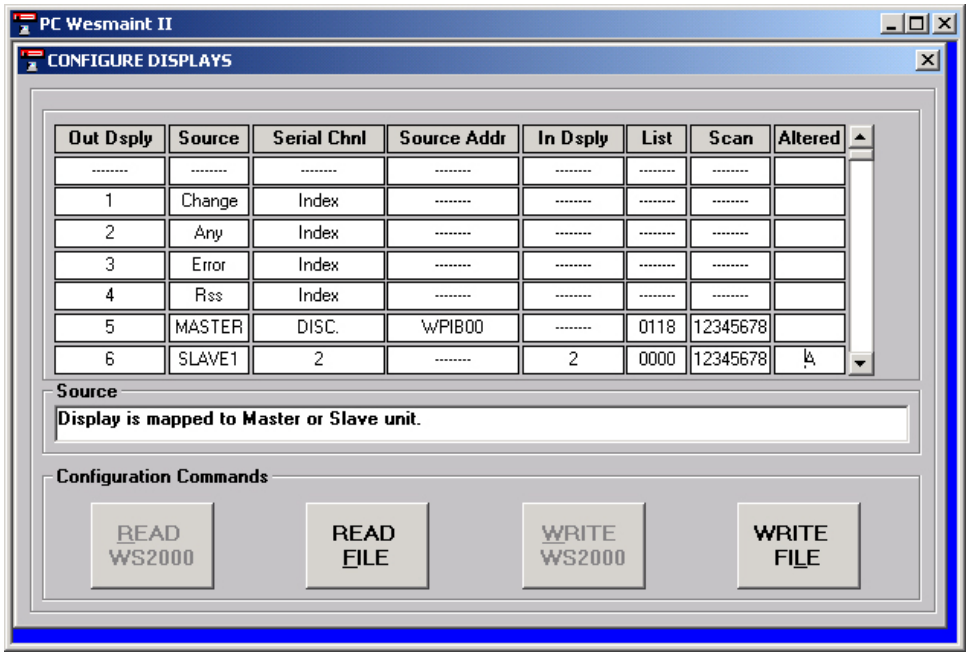

Figure 20 Configure Displays Dialog Box - E2A Protocol

3.3.4 CONFIG LISTS

The **CONFIGURE PROCESS ATTRIBUTE LISTS** dialog box (Figure 21) allows you to view, modify, create, open, delete, or duplicate a process list. Initially, the dialog box displays a blank data table six columns wide:

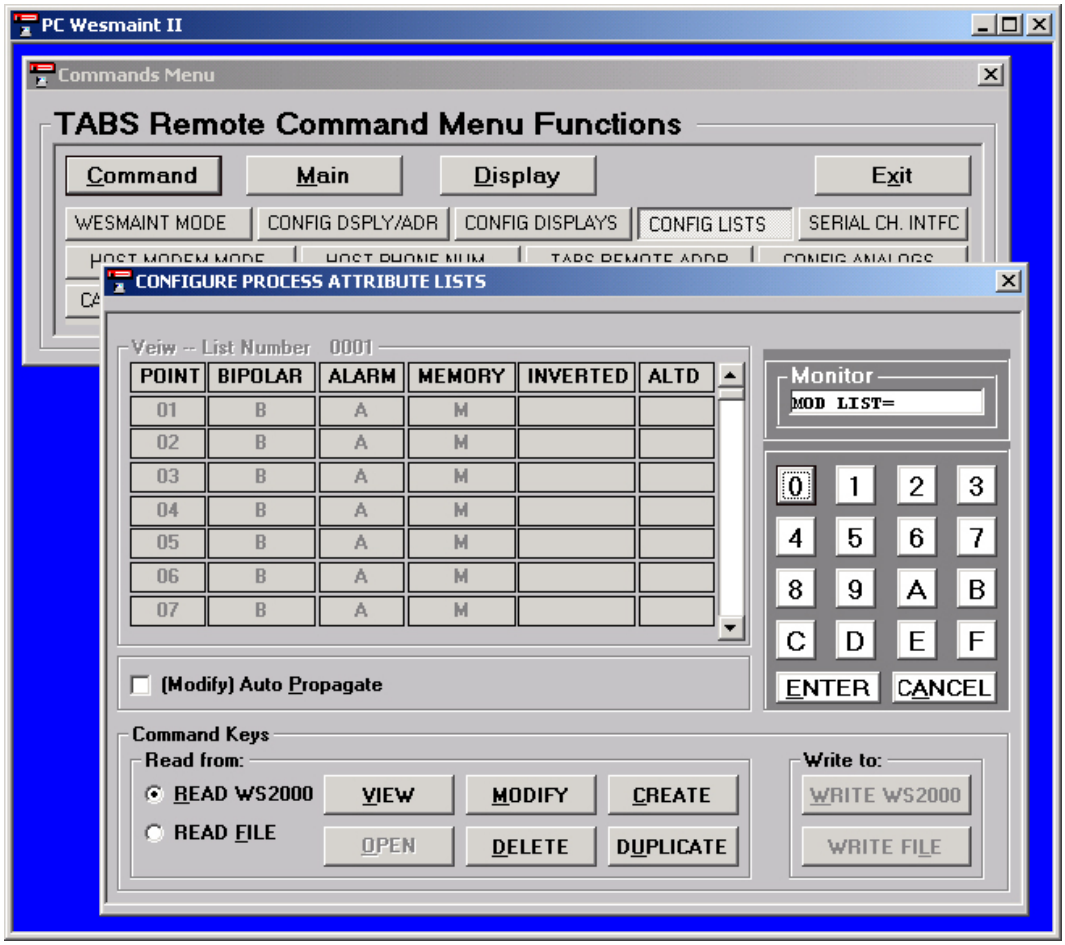

Figure 21 Configure Process Attribute Lists Dialog Box

- Column one (**POINT**) indicates the point number.
- Columns two through five (**BIPOLAR, ALARM, MEMORY**, and **INVERTED**) indicate the individual point attributes. You can change each cell by doubleclicking it, which toggles the attribute value between the attribute acronym (B, A, M, I) and no acronym (blank).
- Column six (**ALTD**) indicates those points whose attributes have changed or are modified in some way. When you modify any cell in a point row, the cell in the last column of the same row changes from a blank to the letter A to indicate an alteration.

The **CONFIGURE PROCESS ATTRIBUTE LISTS** dialog box contains a **Command Keys** group that includes command buttons for viewing, modifying, creating, opening, deleting, and duplicating process list functions. When you select one of these command buttons, a popup keypad appears, permitting you to enter the process list number you want to access. The number you enter displays in a monitor window over the keypad. The monitor displays other information as needed.

Two radio buttons (**READ WS2000, READ FILE**) allow you to select the location from which to access the process list and two command buttons control

writing the process list to WS2000 (**WRITE WS2000**) or to the configuration file (**WRITE FILE**).

VIEW List

The **VIEW** button allows you to choose a process list to display in the **View/Modify - List Number ####** grid for viewing (you can only view the list). The grid remains unavailable (grayed out) until Wesmaint finds an existing process list number and reads it from WS2000 or a configuration file. If the given list number does not exist, Wesmaint displays an error message instead.

MODIFY List

The **MODIFY** button allows you to choose a process list to display in the **View/Modify - List Number ####** grid for modification. The grid remains unavailable (grayed out) until Wesmaint finds an existing process list number and reads it from WS2000 or a configuration file. After Wesmaint has retrieved the list, you can edit and later write the process list to WS2000 or the file. Only the process list in the current edit session is downloaded to WS2000 or file.

CREATE List

Note: *Although "created," Wesmaint actually creates the list when you write it to WS2000 or the file. Until then, you are merely building a process list to add when you press a* ***WRITE*** *... button.*

The **CREATE** button allows you to create a new process list. After you specify a list number, Wesmaint determines whether the number already exists. If the list number does exist, Wesmaint displays an error message and asks if you want to modify the list. If the list does not exist, Wesmaint creates and displays in the grid a new blank list that you can modify.

DELETE List

Note: *When deleting a process list from a configuration* ***file (READ FILE****), Wesmaint deletes the list from memory and moves remaining lists up to fill the vacancy. The delete process is not complete until you press the* ***WRITE FILE*** *button to save the modifications.*

The **DELETE** button allows you to delete any known process list from the WS2000 or the configuration file. After you specify a list number, Wesmaint determines whether the number already exists. If the list number does not exist, Wesmaint displays an error message. However, after finding an existing list number, Wesmaint deletes it.

When working with the WS2000 (READ WS2000), Wesmaint goes directly to the WS2000 process list function and immediately deletes the list. You do not need to press the WRITE WS2000 button to save the modification.

DUPLICATE List

The **DUPLICATE** button allows you to copy attributes from one list into another list. When you press this button, Wesmaint prompts for the list number that you

want to copy from (DUP FROM=) and, after entry, checks for its existence. If Wesmaint cannot find the list, it gives an error message instead and terminates the function. After you enter the list number to copy from, Wesmaint then prompts for the list number to copy into (DUP TO=) and, again, checks for the number's existence.

If the list already exists, Wesmaint displays an error message indication the list's existence and asks if you want to overwrite the given list number. When you choose not to overwrite the existing list number, Wesmaint terminates the function.

*Note: If you are working with a configuration file (**READ FILE**), the process is not complete until you press the **WRITE FILE** button to save the modifications.*

When working with WS2000 (**READ WS2000**), Wesmaint goes directly to the WS2000 process list function and immediately duplicates the list. You do not need to press the **WRITE WS2000** button to save the modification.

3.3.5 SERIAL CH INTFC

***Note:** 9600 Baud rate only available with WS2000 TABS Dial Out Remotes .*

The **SERIAL CHANNEL INTERFACE** dialog box (Figure 22) allows you to view or alter the following:

- Data collection protocols
- Electrical interface specification (RS-232/RS-485 or RS-422)
- Baud rate (1200, 2400, 9600* baud) for the serial channels (1 - 9)

The **SERIAL CHANNEL INTERFACE** dialog box reads the channels and their protocol parameters (baud rate, electrical interface, and polling protocol) from the WS2000 remote and places the data in a table format, providing you a full view of all the currently configured channels. The data table has five columns:

- Column one (**Channel**) indicates the channel number.
- Column two (**Protocol**) indicates the protocol for each channel. Each cell has a pull-down list (TABS or TBOS) for your selection.
- Column three (**Interface**) indicates the electrical connection. Each cell has a pull-down list (RS232/485 or RS422) for your selection.
- Column four (**Baud Rate**) indicates the channel baud rate. Each cell has a pull-down list (1200, 2400, or 9600*) for your selection.
- Column five (**Altered**) indicates which channels have changed or are altered in any way. When you modify any cell of a channel row, the cell in the last column of the same row changes from blank to the letter A to indicate an alteration.

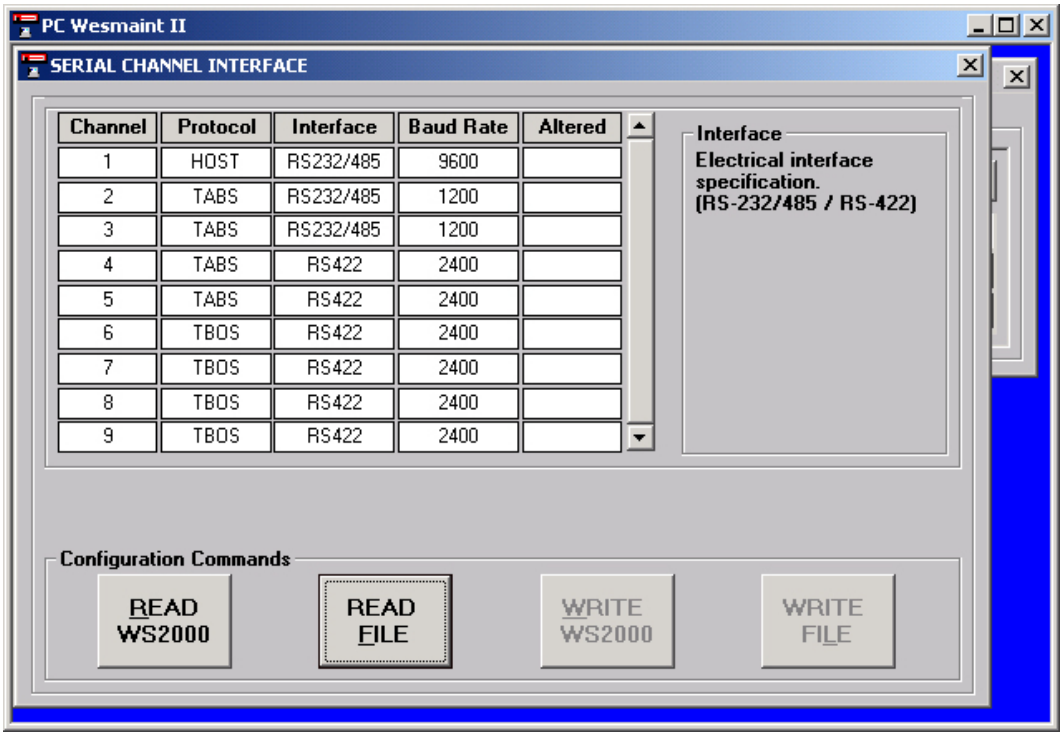

Figure 22 Serial Channel Interface Dialog Box

The **SERIAL CHANNEL INTERFACE** dialog box contains the **Configuration Commands** group with command buttons to read a configuration from WS2000 or a configuration file and to write the configuration to WS2000 or the configuration file.

When the application involves E2A protocol, which has a Master serial channel and a serial channel for each Slave, the dialog box (not shown) has a View Configuration For group consisting of four radio buttons: **Master, Slave1, Slave2**, and **Slave3**. When you select one of these buttons, the serial configuration grid rebuilds with configuration parameters for the selected item. To save configuration time, only those serial channel groups that have had modifications are written to the E2A Master WS2000.

3.3.6 HOST MODEM MODE

The **Host Modem Mode** dialog box (Figure 23) allows you to view or alter **Port Mode**, **Parity** and **Call Retry** parameters. At the bottom of the window is a group of standard configuration command buttons to read or save the changes made.

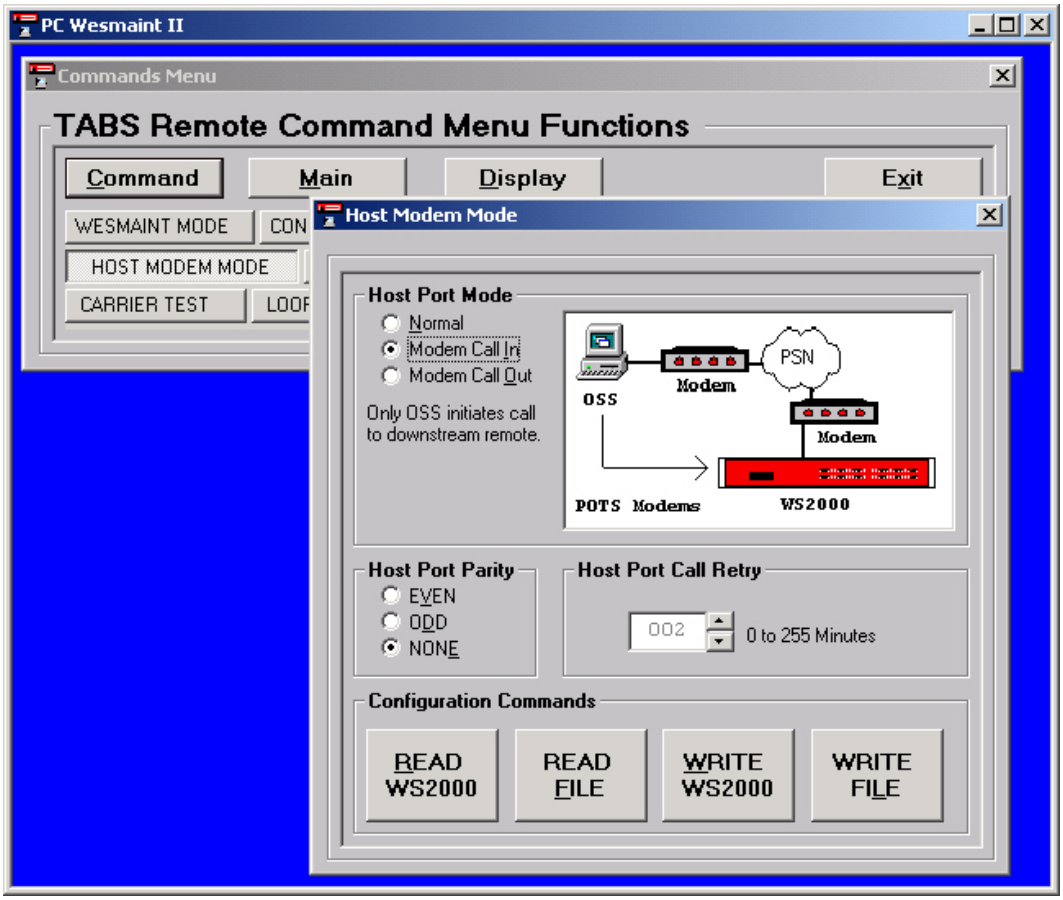

Figure 23 Host Modem Mode Dialog Box

Host Port Mode

The **Host Port Mode** panel indicates how host communications will be handled in respect to using connected external modems.. To help you understand the nature of the selection the PC Wesmaint has provided a diagram of communications between the Host and WS2000 being configured. The Host modem operates in one of three modes:

- Normal
- Modem Call In
- Modem Call Out

*In **Normal** mode, the WS2000 host port responds only to TABS commands addressed to it. This is the current normal poll and response operation.*

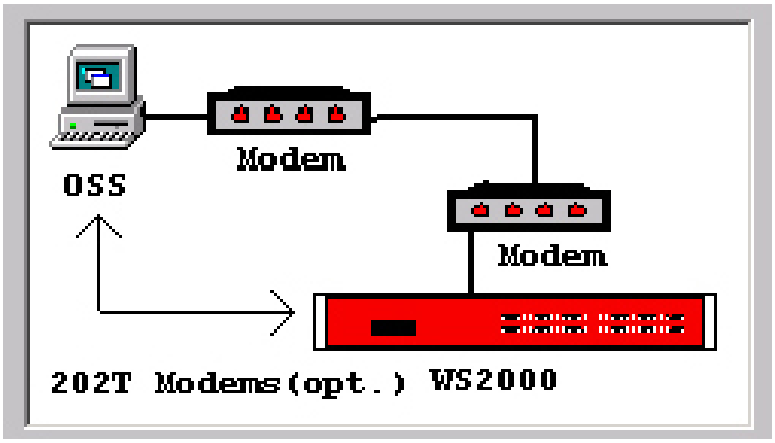

Figure 24 Host Modem Mode Dialog Box - Port Mode: Normal

*In **Modem Call In** mode, the WS2000 is connected to the host though a modem (externally set for autoanswer). The WS2000 responds to host request (polls) for the collected alarms and status changes only after the host calls in.*

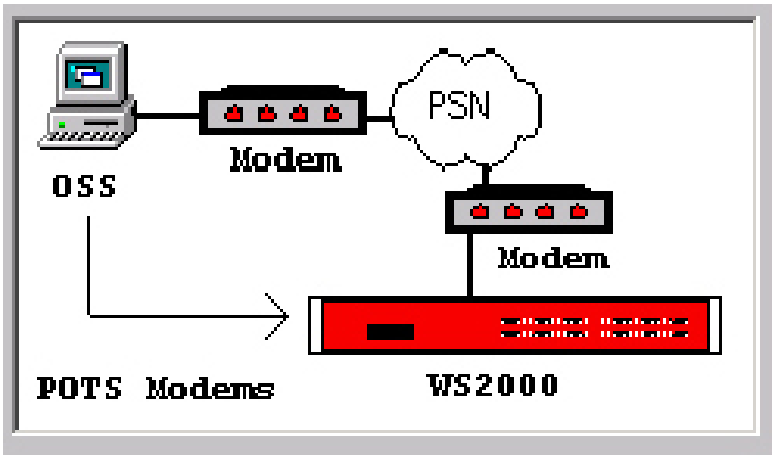

Figure 25 Host Modem Mode Dialog Box - Port Mode: Modem Call In

*In **Modem Call Out** mode, the WS2000 initiates a call to the host through an external modem only when it detects new alarms. After the host answers, WS2000 identifies itself to the host and awaits the host to perform normal poll operation. In* **Modem Call Out** *mode, the host can also dial into the WS2000 to perform polling functions.*

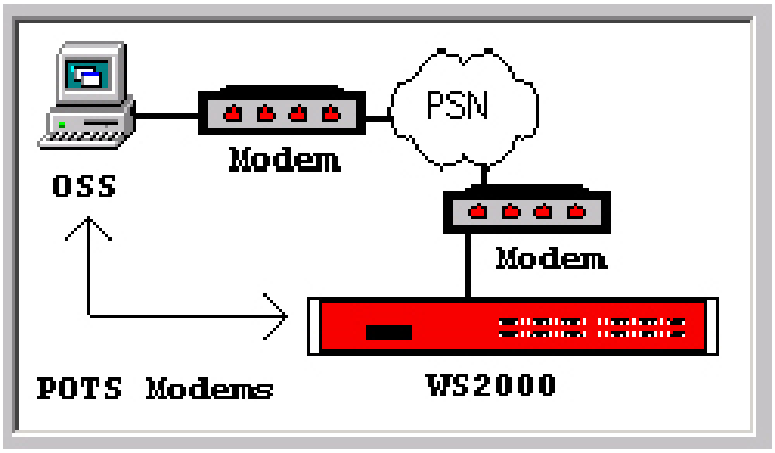

Figure 26 Host Modem Mode Dialog Box - Port Mode: Modem Call Out

Host Port Parity

The **Host Port Parity** panel allows user to set the Parity of the Host Port to **Even, Odd** or No Parity (**NONE**).

Host Port Call Retry

The **Host Port Call Retry** panel allows the user to set the number of minutes (**0-255**) a WS2000 must wait before initiating another call to the host after a failed attempt of either busy or no answer. Set retry time to **0** minutes to continuously retry.

3.3.7 HOST PHONE NUMBER

The **Host Phone Number** dialog box (Figure 27) allows you to view or alter the phone number that is used to dial the host. This dialog window also provides a method to pretest the configured number by simply pressing the appropriate test button on the window.

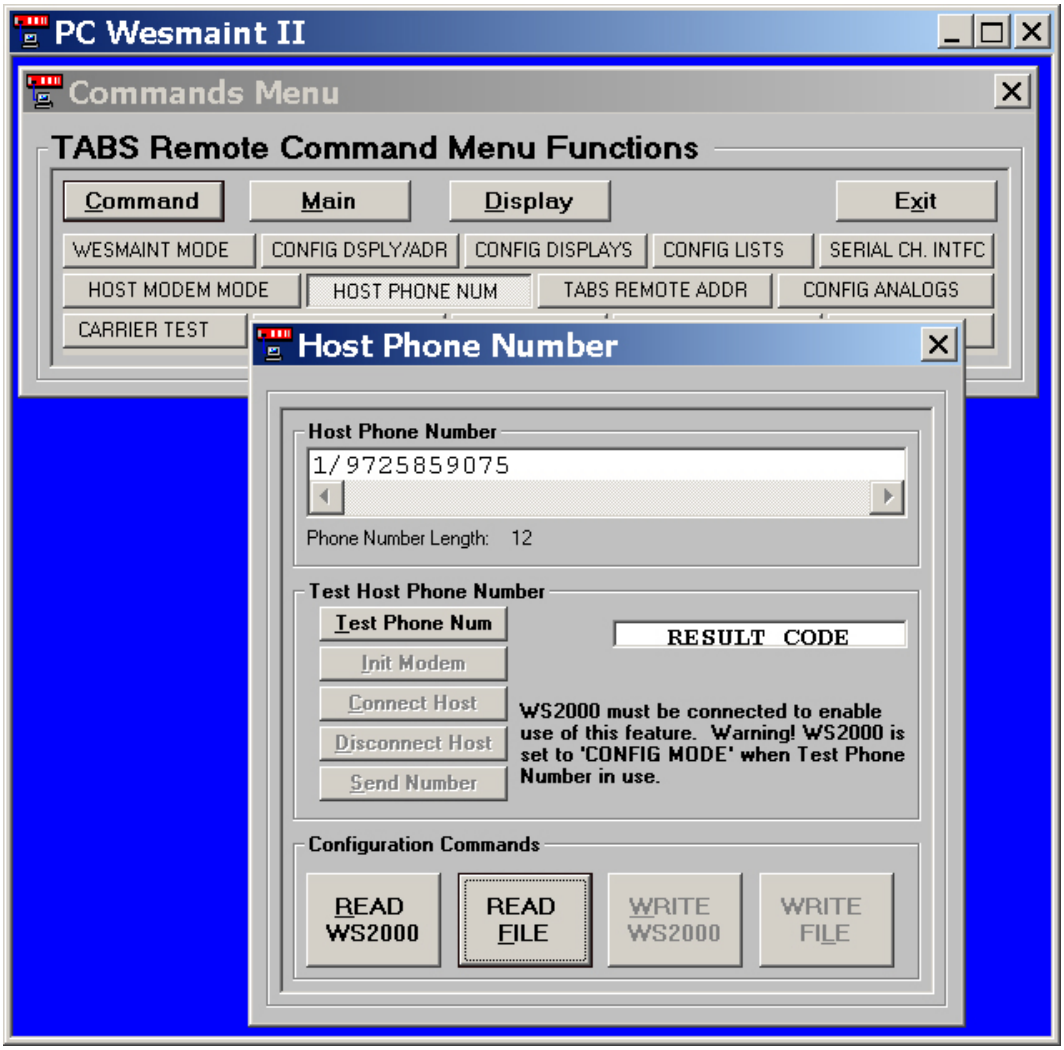

Figure 27 Host Phone Number Dialog Box

At the bottom of the window is a group of standard configuration command buttons to read or save the changes made to the phone number.

Enter the phone number of the host directly by editing the **Host Phone Number** panel text box. Digits 0 – 9 and special delay characters ‘,’ comma and “/” forward slash are the only allowed characters. The text window may accommodate a number up to 99 characters including delay characters. To help keep track of the length of the phone number the PC Wesmaint incorporates a counter beneath the text box to show how many characters have been entered.

Allowable phone number characters are:

- **0 – 9** (*Numeral Digits*)
- **Comma “,”** (*Special character indicating 2-second delay*)
- **Forward Slash “/”** (*Special character indicating 125-msec delay*)

Test Host Phone Number

The **Test Host Phone Number** panel is only enabled when a WS2000 Remote is connected to the PC Wesmaint. When used, the WS2000 is automatically placed in “**Config Mode**” and then returned to “**Normal Mode**” when the phone test is completed.

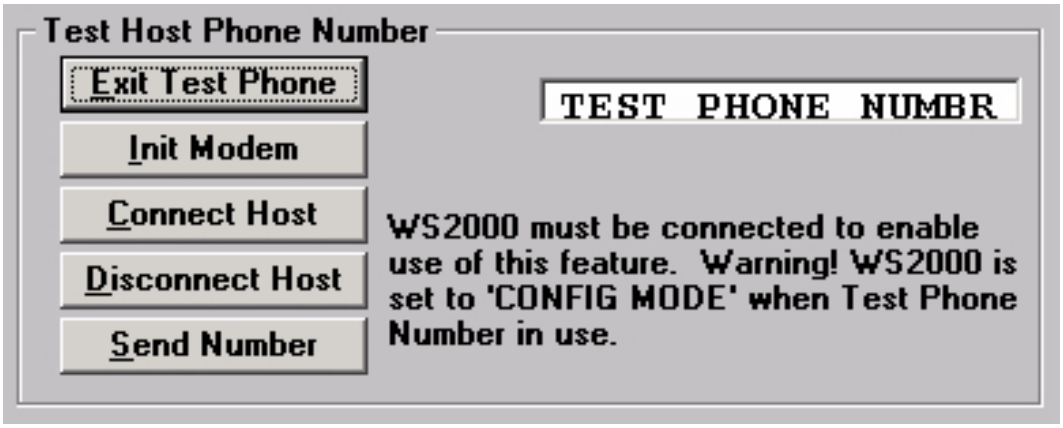

Figure 28 Test Host Phone Number Panel

When the **Test Phone Num** is pressed, the PC Wesmaint causes the connected WS2000 to enter the **Phone Test Mode**. This button enables the remaining buttons in the panel and changes the **Test Phone Num** button to **Exit Test Phone**. The following describes the command buttons of this panel.

- **Exit Test Phone** causes the WS2000 to Exit Test Phone number mode.

- **Init Modem** causes the WS2000 to send to the connected modem an initialization string to set up the modem for communications.
- **Connect Host** causes the WS2000 to send to the connected modem the Configured Dial string.
- **Disconnect Host** causes the WS2000 to send to the connected modem the disconnect string.
- **Send Number/Stop** causes the WS2000 to send to host, via successful modem connection, the configured telephone number. When pressed the button changes to **Stop**. Pressing the **Stop** button causes the WS2000 to cease transmitting the phone number to the connected host.

Note: *The logical order for using these command buttons is first:* ***Init Modem****, second:* ***Connect Host****, third:* ***Send Number****, and fourth:* ***Disconnect Host****.*

The **Test Host Phone Number** panel contains a text box window to display the result codes returned from the connected modem as a result of the command buttons being pressed. The general format of displayed result code is "###=RESULT CODE" (### result code number). Refer to your modem's manual for definition of the result code returned.

3.3.8 REMOTE ADDR

The [E2A/TABS] **Remote Address** dialog box (Figure 29) allows you to view or alter the WS2000 address.

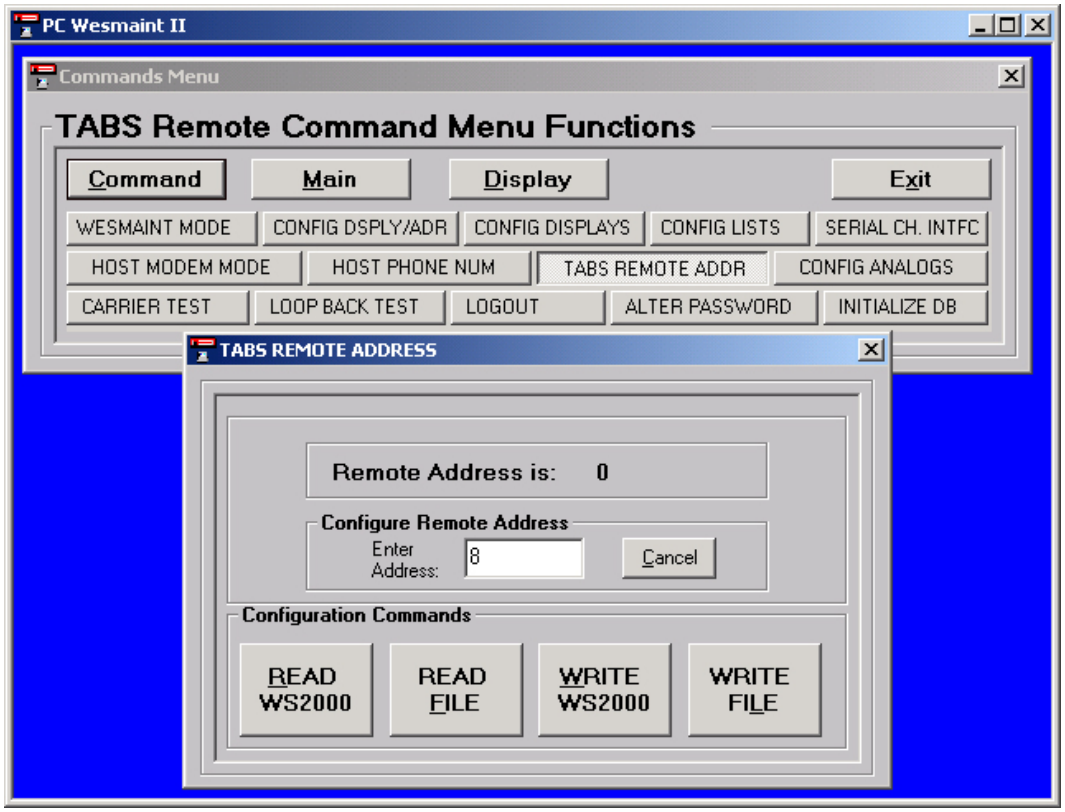

Figure 29 TABS Remote Address Dialog Box

Within the dialog box is a textbox that displays the current WS2000 setting. The dialog box also has an address group consisting of an edit box in which you can directly enter an address in the range 0 - 255. After entering the address, press one of the **WRITE** ... buttons to make the configuration change to WS2000 or the configutation file. The ... **Remote Address** dialog box form can be used for any WS2000 requiring its remote address to be set, for example, an E2A address. The dialog box title changes accordingly for the required protocol: **E2A Remote Address** for E2A scanners or **TABS Remote Address** for TABS scanners.

3.3.9 CONFIG ANALOGS

The **CONFIGURE ANALOGS** dialog box (Figure 30) allows you to view or alter an analog configuration.

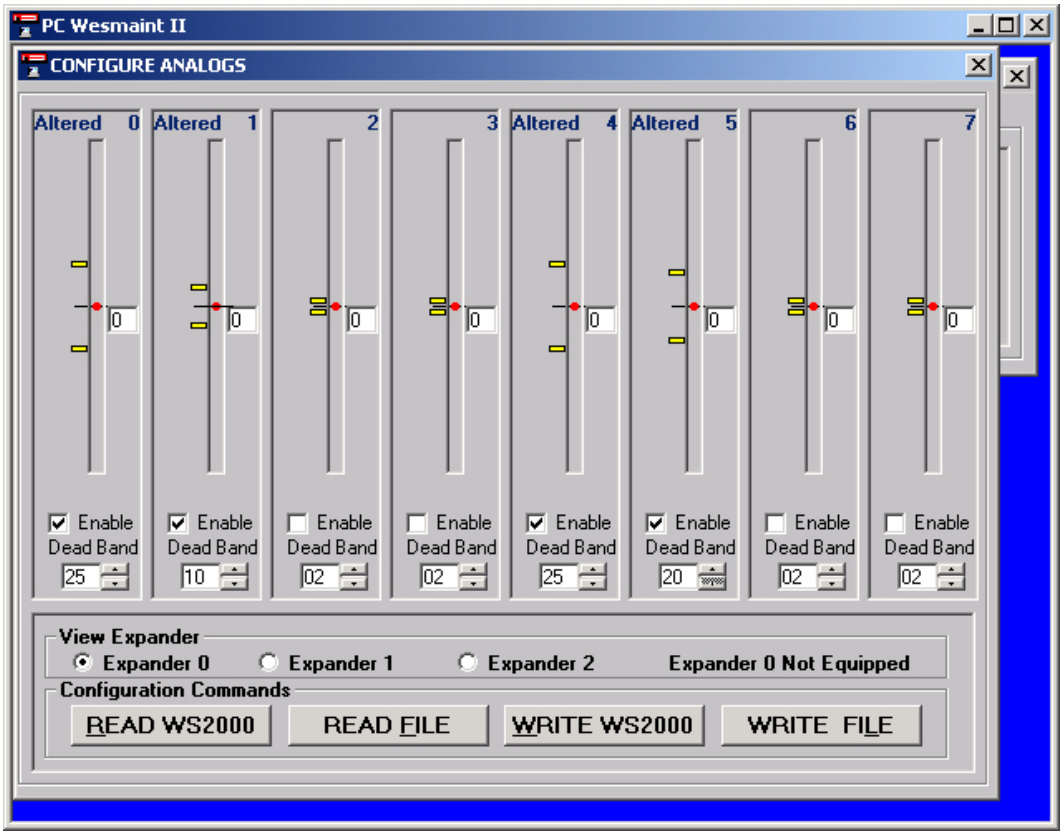

Figure 30 Configure Analogs Dialog Box

The dialog box is much the same box as that used in **Display Menu ANALOG INPUTS** (Figure 14), with added configuration command buttons to read and write analog configurations and scroll boxes for each channel to set the deadband window values. To configure other expander analog channels, select the desired expander number in the **View Expander** group. All analog parameter changes are made to the analog expander set indicated by the **Expander** radio button (**0 - 2**).

Set the deadband window by clicking the mouse on the appropriate spin box to scroll the deadband window value down or up (limits are 0 - 99). This adjusts the deadband markers accordingly. Because this is an offline mode, the markers always remain centered about 0. To enable channel scanning, check the **Enable** checkbox at the bottom of the associated graph. After a change or modification, the word **Altered** appears at the top of the altered channel GUI to indicate which channels were modified. Press **WRITE WS2000** or **WRITE FILE** to save the analog configuration to WS2000 or to file, respectively.

3.3.10 CONFIG ACCUM

The **CONFIGURE ACCUMULATORS** dialog box (Figure 31) allow you to view or alter accumulators in a database table grid (seven columns) of all accumulator channels (maximum of eight):

- Column one indicates the accumulator input channel (0 - 7).
- Columns two through four indicate severity threshold levels for SEVER, DEGRADED, and ERRORED on each accumulator. You must maintain the following severity threshold relationship: Severe threshold > Degraded threshold > Errored threshold.
- Column five indicates whether analog channel scanning is On or Off.
- Column six indicates whether the WS2000 is equipped with an accumulator daughter card. The cells in this column display NE (not equipped) or EQ (equipped). You cannot correct the Equipped status for configurations read from a file.
- Column seven indicates which accumulator channels have changed or are altered in any way. If any cell in a channel row changes, the cell in the last column of the same row changes from blank to the letter A to indicate an alteration.

Below the data grid is a textbox displaying Help information for configuring the individual columns. The textbox is mouse-driven (that is, context sensitive) in that it displays Help information for the column the mouse pointer is currently over. At the bottom of the window is a group of standard configuration command buttons to read or save accumulator changes.

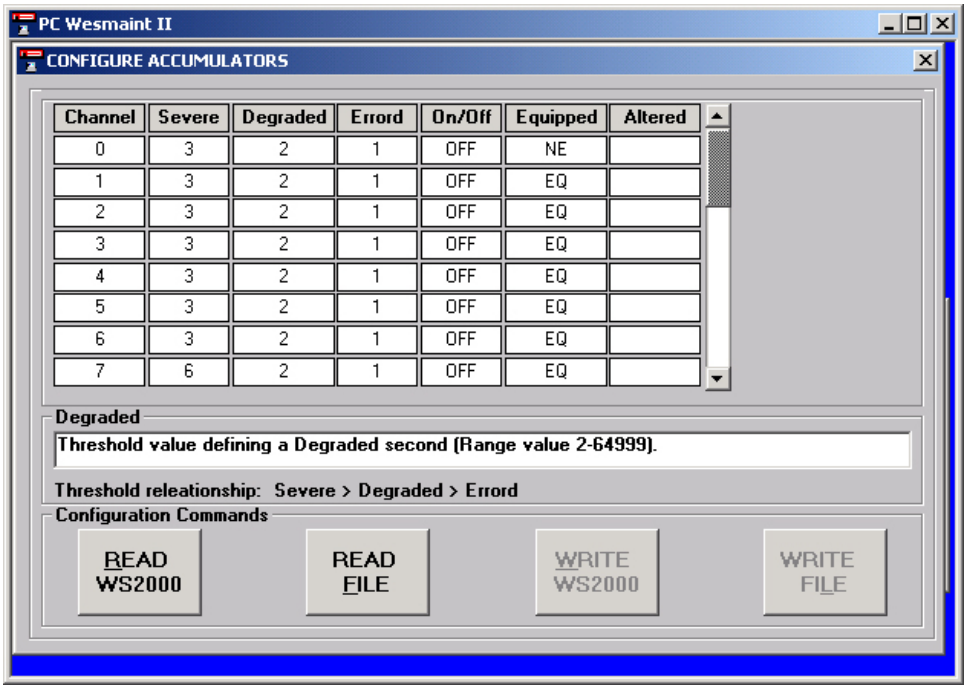

Figure 31 Configure Accumulators Dialog Box

3.3.11 CARRIER TEST

The **CARRIER TEST** dialog box (Figure 32) allows you to manually operate the WS2000 carrier signal for test purposes. The dialog box has command buttons to turn the carrier On or Off.

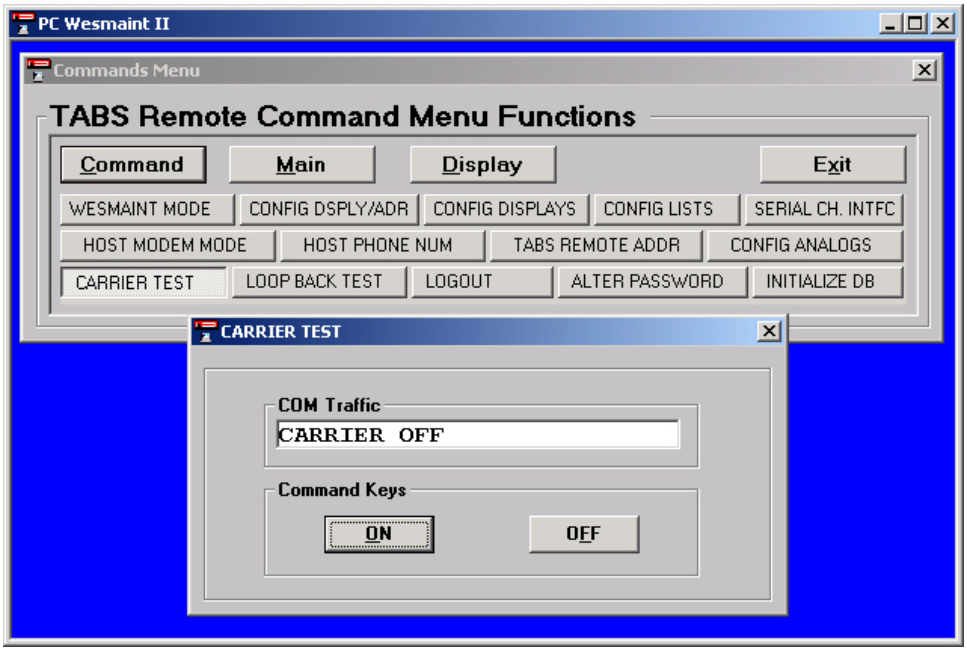

Figure 32 Carrier Test Dialog Box

3.3.12 LOOP BACK TEST

The **LOOP BACK TEST** dialog box (Figure 33 and Figure 34) allows the WS2000 to perform diagnostics on the serial ports in RS-232 or RS-422 modes, providing the correct loopback connector is on the correct serial channel.

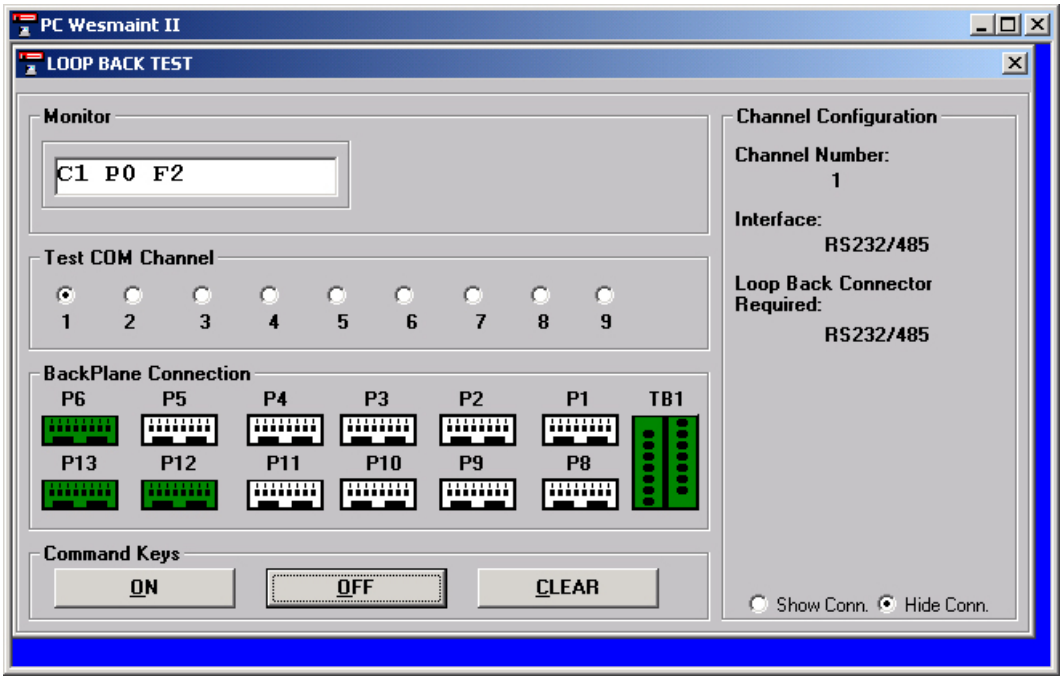

Figure 33 Loopback Test Diaglog Box - Hide Connection

Note: *You must place the WS2000 into the Configuration Mode using the* ***WESMAINT MODE*** *dialog box (*Figure 17*) before you can use the* ***LOOP BACK TEST*** *dialog box. After testing completes, return the WS2000 to Normal Mode.*

The dialog box contains a textbox to display WS2000 data, such as Success or Fail information. The **Test COM Channel** group, just below the display window, has several radio buttons allowing you to select the serial port (**1 - 9**) to test. Because radio buttons are mutually exclusive, you can only test one channel at a time. The **BackPlane Connection** group presents a view of the correct serial loopback connector (the connector or connectors change to show the channel you have selected). The Command Keys group contains the test activation buttons (**ON, OFF, CLEAR**) to perform the test. These buttons start or stop the test and clear the error count displays for pass/success and fail. **The Loop Back Connector** group displays connector configuration parameters for the selected channel.

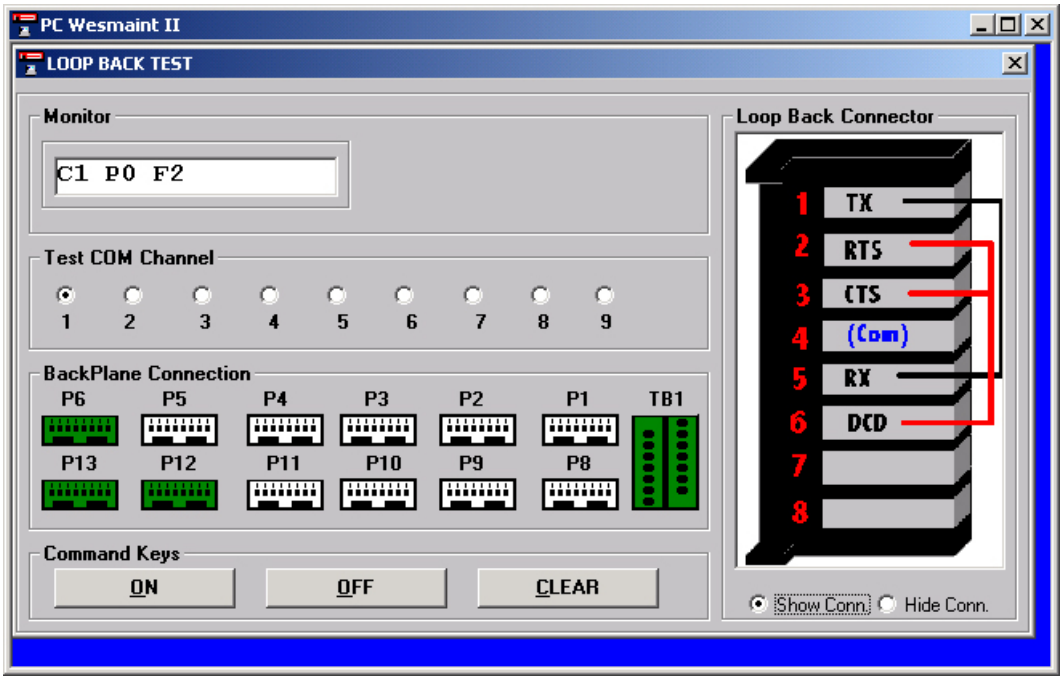

Figure 34 Loopback Test Dialog Box - Show Connection

3.3.13 LOGOUT

The Logout function allows you to end a WS2000 session. If you used a password to enter the session and you click on **LOGOUT** in the **Command Menu**, Wesmaint automatically accesses the Alter Password function to restore the disabled password. If you did not use a password (the Password = 0000 and is disabled) and you click on **LOGOUT**, Wesmaint generates a message indicating that the password is disabled.

3.3.14 ALTER PASSWORD

Note: *When the password is enabled and you log out of the command session, it is not possible to log into WS2000 and gain access to Wesmaint functions (**Display Menu**, **Command Menu**, and **Upload/Download DB**) or change/disable the current password without first entering the current password.*

Although the Command Menu has the ALTER PASSWORD button, PC Wesmaint does not use the Alter Password function from within the Command Menu. Instead, return to the Main Menu, click on Wesmaint Panel to access the Alter Password function, and use manual procedures to alter/edit the password. The WS2000 Alter Password function allows you to enter a four-digit hex number (####) that enables the function (0000) disables the function

Using Passwords

When the Password function is enabled, the Logout function activates the Password function and prevents you from accessing WS2000 Wesmaint functions (Display Menu, Command Menu, and Upload/Download DB) without first entering the password. If the password is enabled (password ? 0000) and previously activated by the Logout function when you press a **Display Menu, Command Menu**, or **Upload/Download DB** button command keys, Wesmaint displays the **Wesmaint Panel** dialog box and prompts you for the password. After you enter the password, exit the **Wesmaint Panel** dialog box and proceed with your activity.

If, after entering a password, you enter the **Command Menu**, Wesmaint displays a message box indicating that the password will be disabled. Press **CANCEL** to quit or **OK** to disable the password. Wesmaint automatically accesses the Alter Password function and changes the password to zero (0000). When you terminate the PC Wesmaint application from the **Command Menu** (**LOGOUT**) or the **Main Menu** (**Exit**), Wesmaint automatically accesses the Alter Password function to change current password 0000 to the original password entered at the Wesmaint panel.

3.3.15 INITIALIZE DB

The **INITIALIZE DATABASE** dialog box (Figure 35) allows the WS2000 EEPROM (the configuration database storage device) to reset to factory default settings.

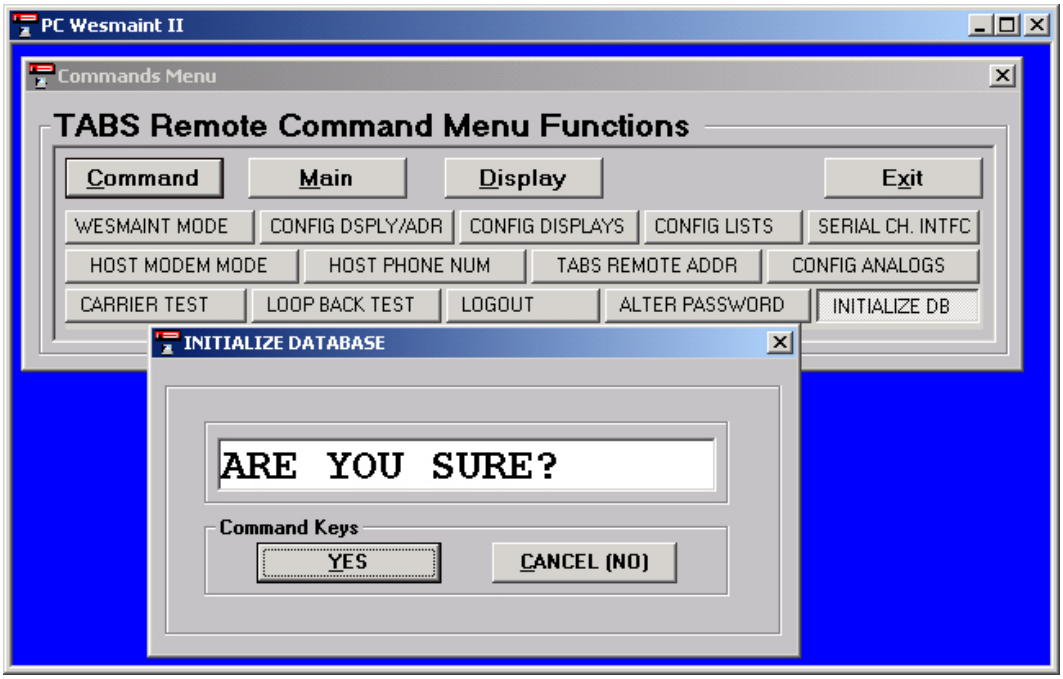

Figure 35 Initialize Database Dialog Box

Note: *You must place the WS2000 into the Configuration Mode using the* ***WESMAINT MODE*** *dialog box (*Figure 17*) before you can use the* ***INITIALIZE DATABASE*** *dialog box. After testing completes, return the WS2000 to Normal Mode.*

The dialog box has a textbox to display WS2000 data. Below the textbox are **Yes** and **CANCEL** (**NO**) buttons to confirm execution of the Initialize DB function. Press **Yes** to execute the WS2000 Initialize DB function and to make any configuration in memory invalid. You must upload the WS2000 configuration again when returning to any of the configuration windows.

4 TABS Database Conversion

If you have archived databases that were written by WS2000 software prior to 569-T060 Revision G (the last alpha revision) and want to make them compatible with the latest WS2000 software format (569-T060 Version 5.2 - the first numerical version), perform the following:

- Convert the archive file using the database conversion utility resident in the DOS version PC Wesmaint.
- Download the converted database into WS2000 using the DOS version PC Wesmaint.
- Upload the database from WS2000 using the Windows version PC Wesmaint. When you upload the database, PC Wesmaint prompts you for a filename and automatically saves the database.

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5 E2A Slave Remote

Select the E2A Slave remote using the **Remote** command in the menu bar of the **Main Menu** window. The slave remote uses the same form modules mentioned in *Enhanced Wesmaint Maintenance Interface* that apply to the slave scanner, with the following minor exception. The **Command Menu** displays the slave command menu items, but the **SERIAL CH INTFC** and **SLAVE ADDR** commands are combined into one form: **CONFIGURE SLAVE REMOTE**. Upload or download functionality does not exist because of configuration simplicity. If PC Wesmaint does not detect a WS2000 when you are in the **Main Menu**, you cannot enter the **Wesmaint Panel, Display Menu**, or **Command Menu**.

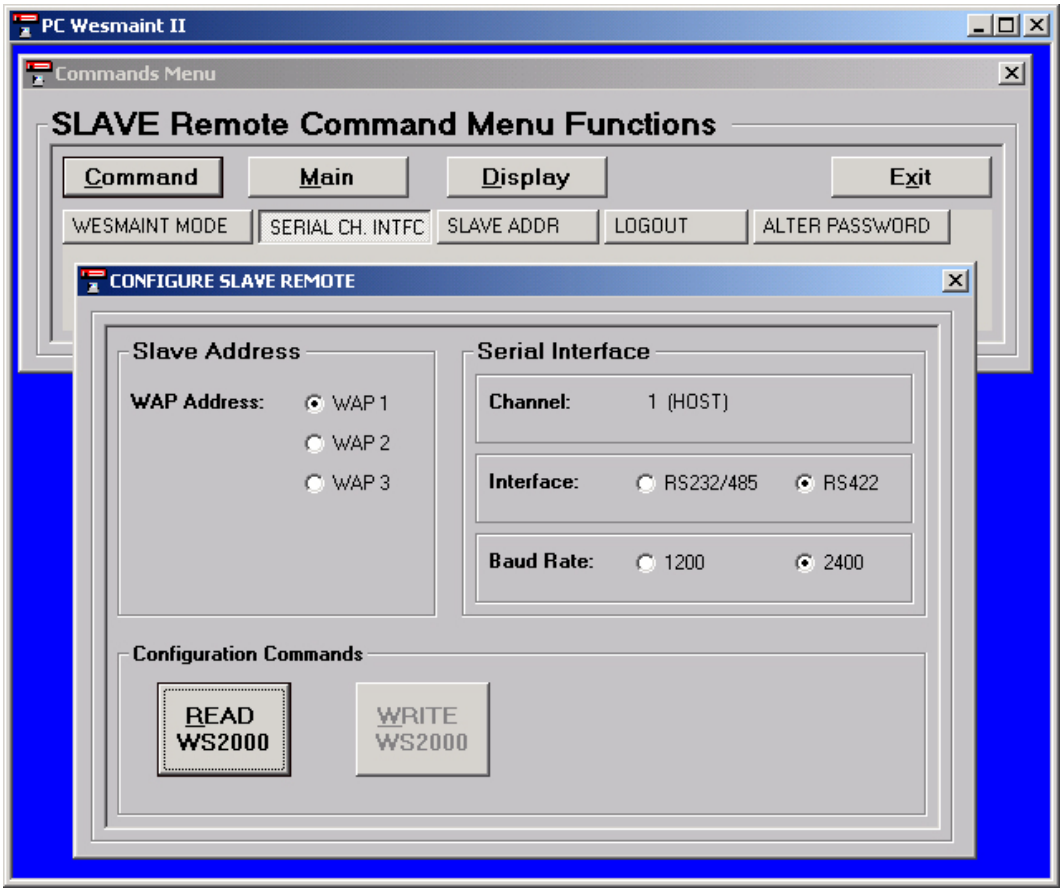


Figure 36 Configure Slave Remote Dialog Box

Note: *Only the host port is configurable.*

The **Configure Slave Remote** display (Figure 36) contains the following three groups: **Slave Address, Serial Interface**, and **Configuration Commands**.

The Slave Address group has three radio buttons, one for each configurable address (**1, 2**, and **3**). The Serial Interface group has three subgroups. The first subgroup indicates the channel number. The second subgroup contains the interface options (RS232/485 and RS422). The third subgroup contains the baud rate options (1200 and 2400).

The **Configuration Commands** group has two buttons: one to read the slave configuration and one to write configuration changes. The Write button becomes available only when you have made a change to a parameter or configuration option in a **Slave Address** or **Serial Interface** group. After you have set the desired options, press the **Write** button to save the configuration and the changed parameters. All parameters are written to the slave remote, regardless of whether a parameter is changed or not.

6 Configuration File

6.1 Overview

PC Wesmaint reads the configuration file, which is the storage file for the WS2000 database configuration, from the WS2000 remote. This file is in tab-delimited format, allowing almost any spreadsheet application to print, view, or alter the configuration file. The file begins with the string `#WS2000 CONFIGURATION FILE`. Following this string is an added string that not only describes the remote type (TABS, TABS D.O., TABS A&P, TABS A&P PLUS, E2A, or E2A/TABS), but also determines the file content and remote type. PC Wesmaint does not allow you to open any WS2000 configuration file that does not begin with the added string nor does it allow you to open any WS2000 configuration file remote type that does not match the remote type that you selected from the Main Menu.

In the case of a TABS configuration file, the connected WS2000 must be of the same type (TABS, TABS A&P, or TABS A&P PLUS) as the configuration file. For example, if the WS2000 is a 569-T060 Revision D WS2000 TABS remote, the selected file to download must be a TABS type. Or, if the WS2000 is a 569-T054 Revision D WS2000 TABS A&P remote, the selected file to download must be a TABS A&P type. WS2000 569-T060 Version 5.2 and later require a TABS A&P PLUS-type configuration file. 569-T060 Version 5.2 is the first numerical revision. Previous versions were alpha revisions (Rev D, G, and so on).

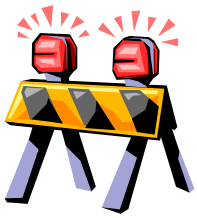
Note: *Any comments that you insert are not saved because the system does not replace parameters on an item-by-item basis, but instead erases the entire file and rewrites the configuration.*

Configuration contents are laid out in tables, with each table named according to its contents. The tables have no particular order and can be altered to any order that you require. The only requirements are that each section begin with the string `#TABLE_BEGIN` (*`configuration title`*) and end with the string `#TABLE_END` (*`configuration title`*), where the configuration title is the label given to the particular configuration table. Within each section, you can place comment lines where needed, as long as each comment line begins with the character #. The Wesmaint read file function ignores any line beginning with #.

When it reads the configuration file, Wesmaint reads the entire contents and places them in their prospective memory containers. Basic error control catches minor errors in the following:

- Number of tables read
- Table definition
- Missing data

- Lines missing from a total number of expected lines for the particular table being read



CAUTION:

After PC Wesmaint reads a configuration, continuing to work with a configuration containing errors is inadvisable because the errors can have or cause unsatisfactory results/errors. You must correct the errors before proceeding.

Number of Read Tables

Wesmaint expects to read a certain number of tables for each protocol. For example, E2A protocol has six tables, E2A/TABS has five, and TABS can have five - seven tables, depending on whether the saved configuration is from a WS2000 A&P scanner. Wesmaint counts each table found and, when file reading is completed, displays an error message if the count is greater or less than the expected number.

Number of Undefined Tables

Wesmaint also outputs an error message if you misspell or omit the table name. For example:

`#TABLE_BEGIN REMOTE ADDRESS` ⇨ correct table name

`#TABLE_BEGIN ADDRESS` ⇨ undefined table name ⇨ display error message

Missing Data

Wesmaint gives an error message for missing data parameters because it expects to read a given number of parameters appropriate for the current table. If one or more parameters are missing, Wesmaint flags the line number where the error occurred and displays an error message when file reading is completed.

Missing Lines

The last type of error message is for lines missing from a table. Wesmaint generates the error message if the currently read table is short in the number of lines that it expected to read for the table. For example, the serial channel table for TABS must contain nine lines of data (Channels 1 - 9).

Copying Errors

Note: *After the error window closes, the errors are lost and cannot be retrieved again without reading in the same configuration file.*

Configuration file errors display at the end of reading the configuration file. The error window displays all errors in the order in which they were found. You can select any particular line or lines of data to copy and paste into a separate application or you can select the **COPY** button to copy all errors to the Windows Clipboard. The copy function becomes handy when you need to print a copy of the errors to help debug the configuration file

The remainder of this section shows layouts for E2A and TABS remote configurations.

6.2 E2A Remote Configuration Layout

The following is a standard layout for E2A remote configurations:

```
#WS2000 CONFIGURATION FILE (#WS2000 CONFIGURATION FILE (E2A) for files built
with VER 2.0.0)
#TABLE_BEGIN SERIAL CHANNEL INTERFACE
#MSTR/SLVE   Channel    Electric   BaudRate
--------     --------   --------   --------
#TABLE_END SERIAL CHANNEL INTERFACE
#TABLE_BEGIN CONFIGURED RTU SLAVES
#Slave       Channel          Equipped
--------     --------         --------
#TABLE_END CONFIGURED RTU SLAVES
#TABLE_BEGIN REMOTE ADDRESS
#Address
--------
#TABLE_END REMOTE ADDRESS
#TABLE_BEGIN E2A ERROR REPORTING
#Format
--------
#TABLE_END E2A ERROR REPORTING
#TABLE_BEGIN CONFIGURED DISPLAYS
#OUTDspl     SOURCE     CHANNEL    SRC ADR    INDsply    LIST       SCAN
--------     --------   --------   --------   --------   --------   --------
#TABLE_END CONFIGURED DISPLAYS
#TABLE_BEGIN CONFIGURED PROCESS LISTS
#LIST        #POINT           ATTRIBUTE
--------     --------         --------
#TABLE_END CONFIGURED PROCESS LISTS
```

6.3 TABS Remote Configuration Layout

Note: *The table sections for DISPLAYS/ADDRESSES , ACCUMULATORS, HOST MODEM MODE, HOST PHONE NUMBER, and ANALOGS depend on the software versions of the WS2000 TABS remote scanner. (That is, these sections may or may not be included.)*

The following is a standard layout for TABS remote configurations:

```
#WS2000 CONFIGURATION FILE (TABS) (or TABS A&P or TABS A&P PLUS or TABS D.O.)
#TABLE_BEGIN SERIAL CHANNEL INTERFACE
#Channel        Protocol          Electric          BaudRate
--------        --------          --------          --------
#TABLE_END SERIAL CHANNEL INTERFACE
#TABLE_BEGIN REMOTE ADDRESS
#Address
--------
#TABLE_END REMOTE ADDRESS
#TABLE_BEGIN CONFIGURED MAX DISPLAYS/ADDRESSES (see Note)
#Dsply/Adr
--------
#TABLE_END CONFIGURED MAX DISPLAYS/ADDRESSES
#TABLE_BEGIN CONFIGURED ACCUMULATORS (see Note)
# FORMAT SEVERE>DEGRAD>ERRORD
#CHANNEL        SEVERE      DEGRAD      ERRORD      On/Off      EQUIPPED
--------        --------    --------    --------    --------    --------
#TABLE_END CONFIGURED ACCUMULATORS
#TABLE_BEGIN CONFIGURED ANALOGS (see Note)
#EXPANDER       CHANNEL     DEADWIND    ON/OFF      EQUIPPED
--------        --------    --------    --------    --------
#TABLE_END CONFIGURED ANALOGS
#TABLE_BEGIN HOST MODEM MODE
#HOSTMODE       PARITY      CALLRTRY
--------        --------    --------
#TABLE_END HOST MODEM MODE
#TABLE_BEGIN HOST PHONE NUMBER
#PHONE
--------
#TABLE_END HOST PHONE NUMBER
#TABLE_BEGIN CONFIGURED DISPLAYS
#OUTDspl  SOURCE      CHANNEL     SRC ADR     INDsply     LIST        SCAN
--------  --------    --------    --------    --------    --------    --------
#TABLE_END CONFIGURED DISPLAYS
#TABLE_BEGIN CONFIGURED PROCESS LISTS
#LIST           #POINT           ATTRIBUTE
--------        --------         --------
#TABLE_END CONFIGURED PROCESS LISTS
```

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