FREEDOM TOOL®

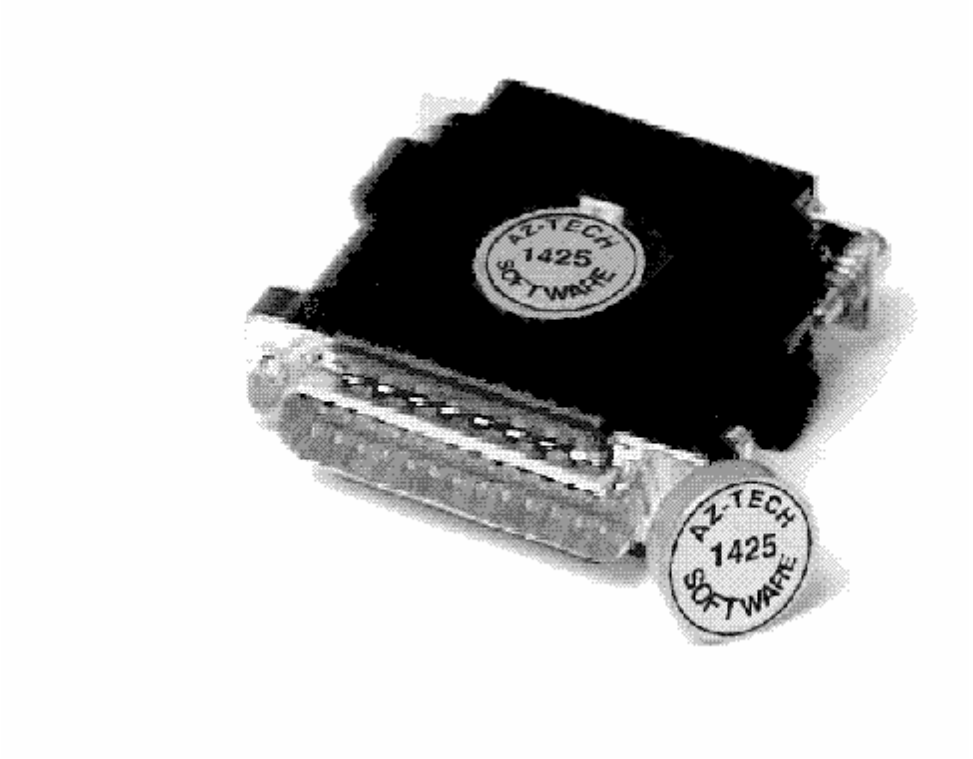
Miprom 21

WORLD electronics

7502.9039

This is Your Software Security Access Key:

DO NOT LOSE IT !



DO NOT PLUG THE SECURITY KEY INTO ANY ELEVATOR INTERFACE PORT

This security device must be plugged into the notebook computer's PRINTER port whenever the FREEDOM Tool Software is to be run.

List of Trademarks

Microsoft Windows, Windows 95, and MS-DOS are registered trademarks/products of Microsoft Corporation.
Megatech and MIPROM 21 are trademarks of the Montgomery-Kone Elevator Corporation.
IBM and PS/2 are registered trademarks of International Business Machines Corporation
WORLD electronics, the WORLD electronics logo, FREEDOM Tool and FREEDOMWare are registered trademarks of WORLD electronics Sales and Service, Inc.

All other trademarks mentioned in this manual are the sole property of their respective manufacturers.

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Introduction:

The FREEDOM Tool is a sophisticated software tool that allows the operator to service various elevators and elevator control systems. The software allows the operator to simultaneously view independent operations within the elevator system by opening windows to those systems / operations of interest. The selected windows may be left open during the maintenance / repair session and accessed when desired.

This User's Guide and Reference has been written to specifically target the Montgomery MIPROM 21 (Megatech) traction elevator control system. All references to "**FREEDOM Tool**" throughout this manual imply that it pertains solely to the software systems that support the Montgomery MIPROM 21 elevator control systems.

FREEDOM Tool Features:

The FREEDOM Tool is a Graphical User Interface (GUI) and provides all the functions necessary to service the Montgomery MIPROM 21 elevator systems. The software runs under the Microsoft Windows operating system and provides the following features:

- A Graphical User Interface which makes it easy to access various adjustment and diagnostic areas comprising the service tool resident upon the Montgomery MIPROM 21 elevator control system being diagnosed.
- Simple point and click operations. The computer does all necessary commands for the user in the background.

Minimum Hardware and Software Requirements:

The software, provided as a package by WORLD electronics, is designed to operate on an IBM compatible notebook computer that has the following minimum characteristics:

- A 486 microprocessor.
- 4 Megabytes of RAM memory.
- Windows 3.1 or Windows 95 Operating System.
- Mouse, Trackball, or other pointing device.
- Minimal clock frequency of 33MHz

The FREEDOM Tool software is not capable of being executed without a sophisticated **security key** that is to be connected to the parallel port of the computer at the time of the FREEDOM Tool execution.

A **WORLD electronics** "FREEDOM TOOL Serial Interface Cable" is required. These interface cables provide the proper signal conversions and connections between the computer and the Montgomery MIPROM 21 elevator system that allows them to communicate with one another.

How to contact WORLD electronics:

If you are having any problems operating the FREEDOM Tool, feel free to contact us at the following location. We value you as a customer and welcome any comments concerning the use of the FREEDOM Tool.

WORLD electronics
3000 Kutztown Road
Reading, PA 19605-2617

Phone: 1-800-523-0427
Phone: (610) 939-9800
Fax: (610) 939-9895

E-mail:

Elevator Sales:
ESales@world-electronics.com

Service:
Service@world-electronics.com

FREEDOM Tool:
fwhelp@world-electronics.com

When calling WORLD electronics for assistance, have your product serial number, the model computer being used, operating system type, and the error description ready.

Getting Started:

Security Device Information:

WORLD electronics protects itself and its FREEDOM Tool software by utilizing a sophisticated security device that must be installed on the parallel printer port, physically located in the rear of the computer, before operating the FREEDOM Tool software. This security key is unique to every FREEDOM Tool and cannot be shared among other FREEDOM Tools.

WARNING! -- It is extremely important this device is not lost. The replacement value of this device is equal to the dollar value of the FREEDOM Tool software Systems purchased from WORLD electronics. This cost is in thousands of dollars. Please take the steps necessary to safeguard yourself against loss of the security device. To Prevent theft, it is advisable to store the security device and the FREEDOM Tool in two (2) separate, secure locations when not in use. **DO NOT PLUG THE SECURITY KEY INTO THE ELEVATOR AT ANY TIME. ONLY PLUG THE SECURITY KEY INTO THE NOTEBOOK COMPUTER.** A damaged security key has a $250 charge affiliated with its replacement.

IMPORTANT!!: The "FREEDOM Tool Serial Interface Cable 7502.9031" must not be connected to the elevator system until the FREEDOM Tool instructs the user to do so.

Executing the Shell Program (Microsoft Windows 3.1):

The start up procedure of the WORLD electronics's FREEDOM Tool is described as follows:

1. From a power down condition, make sure the security key is installed on the parallel port of the computer.

2. Turn on the computer and allow the Windows operating system to become operational. From the Program Manager window, select the "FREEDOM Tool" icon by using the pointing device to position the cursor directly over the "FREEDOM Tool" icon and double clicking the pointing device button. Refer to Figure #1.

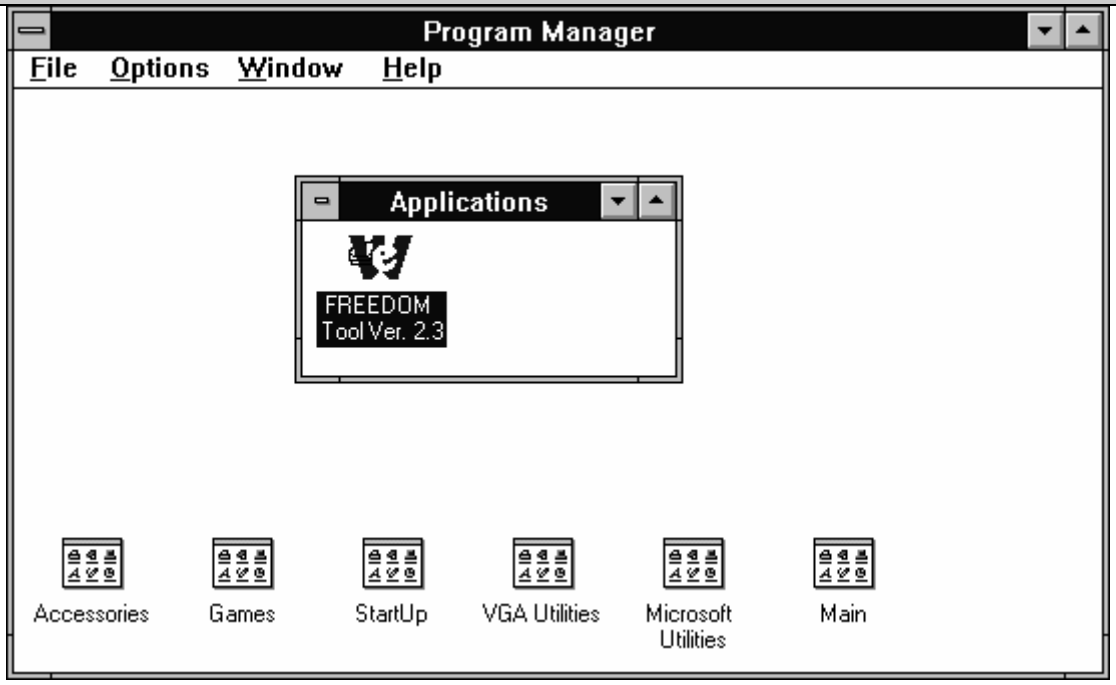

Figure 1

3. With the FREEDOM Tool window open select the “FREEDOM Tool” Icon by positioning the cursor over the “FREEDOM Tool” Icon with the pointing device and double clicking the pointing device button.

4. The “FREEDOM Tool Shell” window will be displayed as in Figure #2.

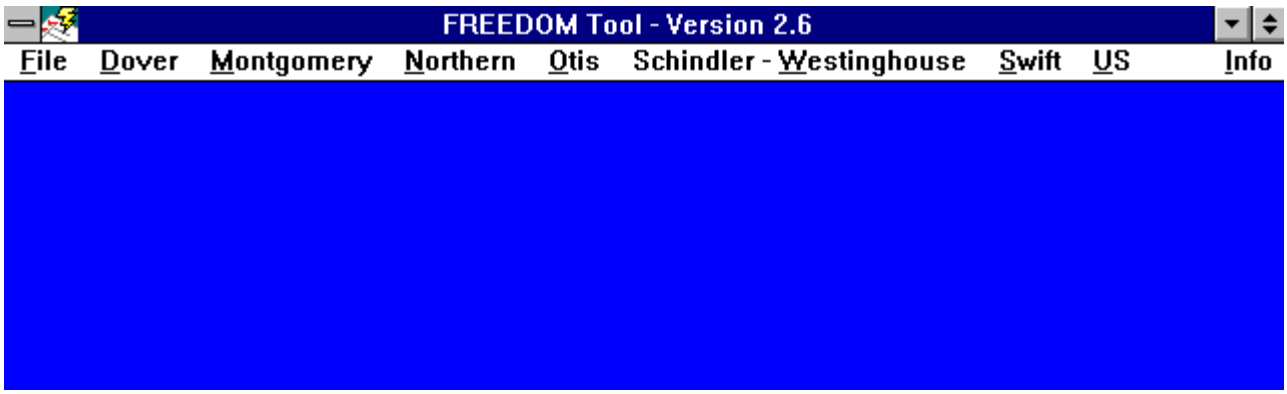

Figure 2

Executing the Shell Program (Microsoft Windows 95):

The start up procedure of the WORLD electronics FREEDOM Tool is described as follows:

1. From a power down condition, make sure the security key is installed on the parallel port of the computer.

2. Turn on the computer and allow the Windows 95 operating system to become operational. From the Desktop either double click with the pointing device on the FREEDOM Tool icon, or select the “Start” Menu button, “FREEDOM Tool Folder”, and then “FREEDOM Tool” Refer to Figure #3.

Figure 3

3. The “FREEDOM Tool Shell” window will be displayed as revealed in Figure #4.

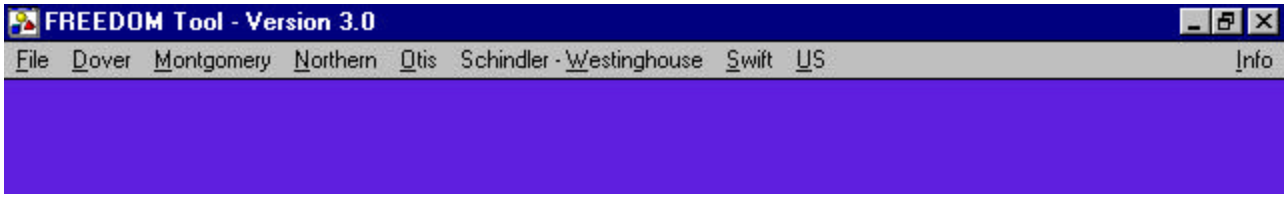

Figure 4

Starting the MIPROM 21 - Software Module:

1. With the “FREEDOM Tool Shell” window open, position the cursor directly over the appropriate system manufacturer menu item selection, and single click the pointing device button. This causes a drop down list of controllers for each manufacturer to appear as in Figure #5.

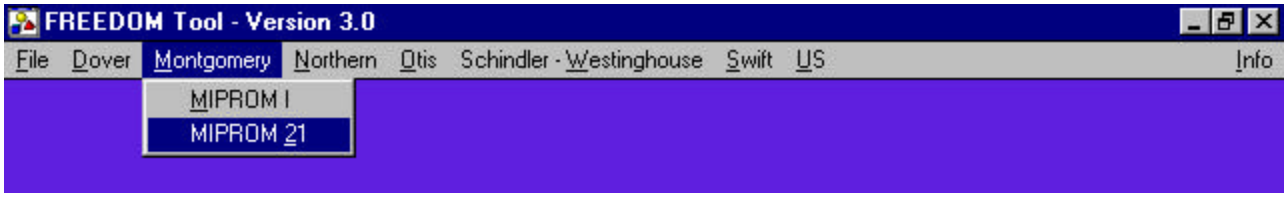

Figure 5

At this time notice that the “M” in the menu item “Montgomery” is underlined. This “M” is underlined because it is a keyboard accelerator shortcut programmed into the shell software. When the user presses and holds down the “Alt” key on the keyboard, and then presses the key representing the underlined letter, the item with that particular underlined letter will be selected. Any item with a character underlined within the FREEDOM Tool software can use this method for selecting that particular item.

2. Position the cursor over “Montgomery” and single click the pointing device button to display the Montgomery elevator controller selections, shown in Figure #5.
3. The Montgomery tool currently services the MIPROM 21 elevator control system. To open the MIPROM 21 - Software Module, position the cursor over the menu selection labeled “MIPROM 21” and single click with the pointing device button.

Logon Procedure

1. The “Communication Settings” window will appear as in Figure # 6. The Communications Settings window allows the user to select which serial port is to be used and, if applicable, what baud rate the tool should run at. To select a serial port, the user would maneuver the pointing device over the appropriate circle beside the desired serial port and click once. When a serial port is selected, a solid, black circle will appear within the larger, white circle beside the serial port label.

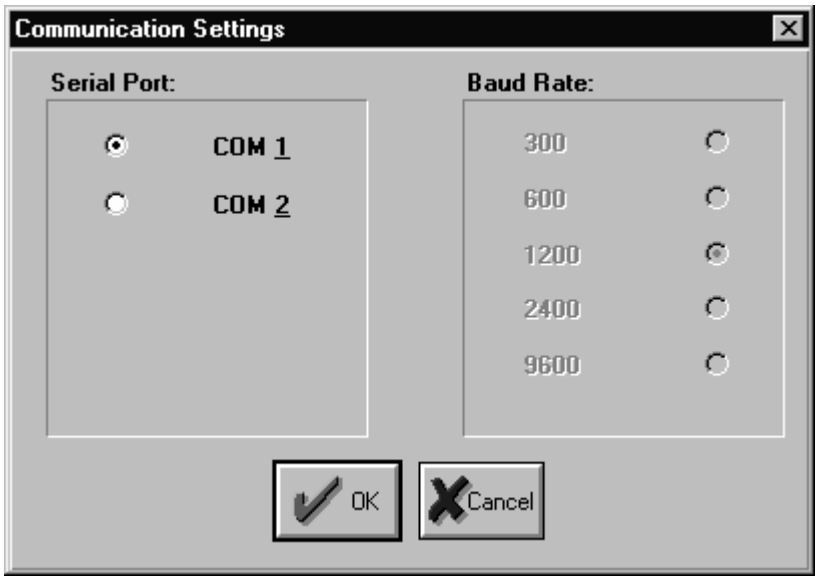

Figure 6

The default serial port is COM 1. If the notebook serial port is not known leave COM 1 selected. To continue with the connection procedure, select the OK or Cancel button. The OK button sets up the communication port according to the selections chosen by the user. Selecting the Cancel button will set the software to use serial port COM 1. In either case, if the selected serial port is incorrect a message window as seen in Figure # 7 will appear.

Figure 7

This window informs the user of the error. To close this window and choose the appropriate serial port, select the button labeled OK. If unsure of which serial port is used on the notebook computer, please refer to the notebook computer documentation for assistance. A successful selection of the serial port will cause the FREEDOM Tool to verify the security key. The Next step describes this verification process.

2. The “FREEDOM Tool: Security Key Information” window will be displayed as in Figure # 8 if the correct security key has been determined to be installed. The Security Key Information window gives the user information on the software module being used, part of the key being diagnosed, the serial number, and the expiration date. Continue with the program by positioning the cursor over the OK button and single click with the pointing device button.

Figure 8

In the event that the security key has not been installed or a problem exists with the installed key, a “FREEDOM Tool: Security Key Information” window will be displayed revealing an authorization error as shown in Figure # 9. Please take note of this error number and call WORLD electronics for help. To continue, position the cursor over the OK and single click with the pointing device button. This causes the FREEDOM Tool software to terminate execution and return to the FREEDOM Tool Shell.

Figure 9

3. The “Software Information Window” will be displayed as in Figure #10 which indicates the software version selected, displays copyright information, and provides the 800 number in which to contact WORLD electronics. Other information found in this window includes, the serial number of the security key being used, the current time, the current date, and a code used for support identification. WORLD electronics currently is using a software maintenance program that allows the user access to technical telephone support with one of WORLD electronics design engineers and all software updates. The WORLD electronics’ Software Maintenance Agreement is outlined in Appendix D on the last page of this manual. A yellow card, found within the MIPROM 21 Software package titled “WORLD electronics’ Software Maintenance Agreement“, must be read. The bottom half of this card must be filled out and returned in order to receive any technical support help from WORLD electronics. When finished viewing this window, continue by selecting OK with the pointing device.

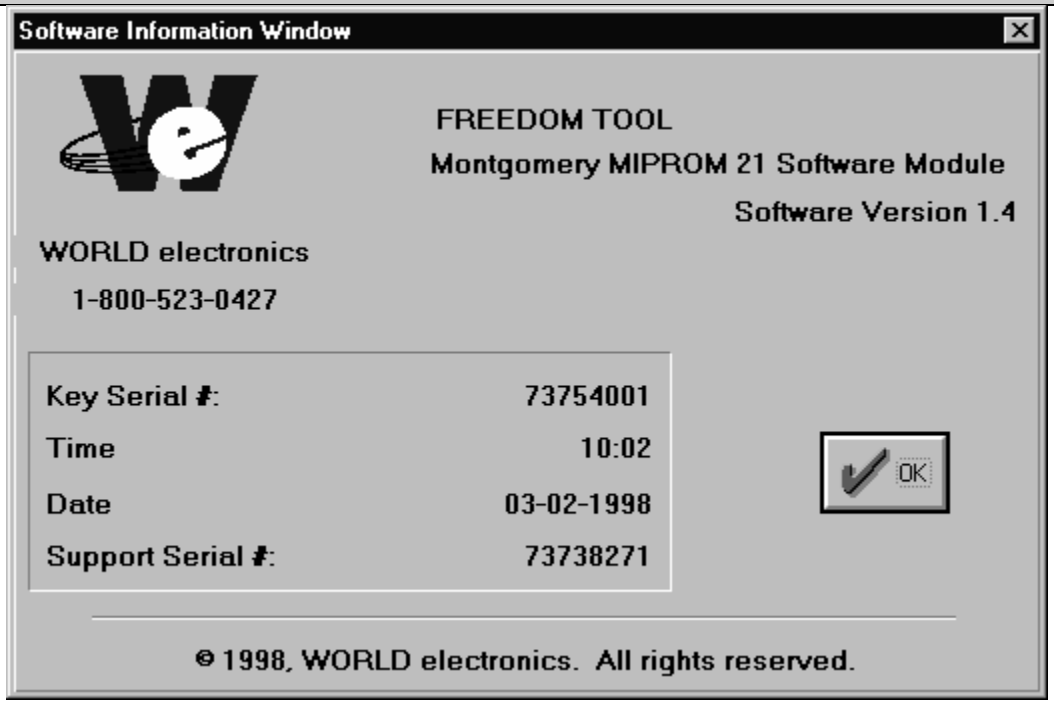

Figure 10

4. After OK has been selected in the "Software Information Window" a message window similar to the one seen in Figure #11 will appear.

Figure 11

The "Connection Information" message window gives the user instructions pertaining to connecting to the elevator. Until this point, the interface box and cables should have in no way been connected to the elevator control system. The instructions in this window tell the user to connect the interface cables to the elevator system. After the connection has been made, the user should then select the button labeled OK to continue with the LOGON procedure. Upon successful communication, a series of windows identifying the response from the elevator will appear. Press OK in each of these six windows to continue with the logon. NOTE: The MIPROM 21 (Megatech) requires an intensive logon procedure, which the FREEDOM Tool software module handles in the background. If the user does not have the correct cables or does not want to continue with the logon procedure, the button labeled Cancel can be used.

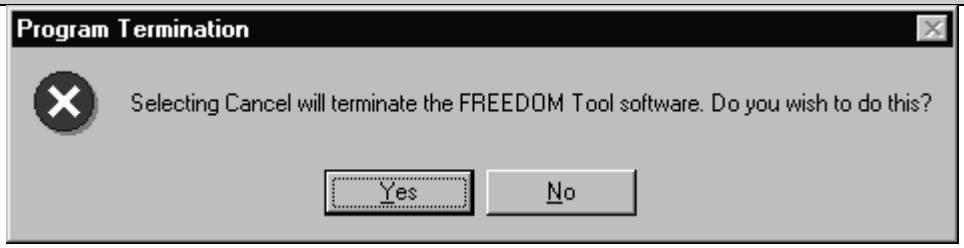

Figure 12

When the Cancel button is selected, a message window will appear as in Figure #12 informing the user to the potential termination of the software. The “Program Termination” message window allows the user to select to options, Yes and No. If it is desired to terminate the program, the user should disconnect the interface cables from the elevator system and select the button labeled “Yes”. When this is done, the FREEDOM Tool software will terminate. If the user inappropriately selected the Cancel button in the “Connection Information” message window, the No option in the “Program Termination” window will allow the user to continue with the logon procedure.

In the event, an error in communications occurs during the logon procedure, a message will pop up informing the user to the nature of the error. This message window will instruct the user to check connections and restart the FREEOM Tool software. If the problem still occurs after trying the logon procedure a second time call WORLD electronics for assistance. When calling WORLD electronics for assistance have your product serial number, the model computer being used, operating system type, and the error description ready.

5. When the user selects the OK button in the “Connection Information” message window, a brief period of time will pass followed by the appearance of the “Location Selector” window. The “Location Selector” window is similar to the picture shown in Figure #13.

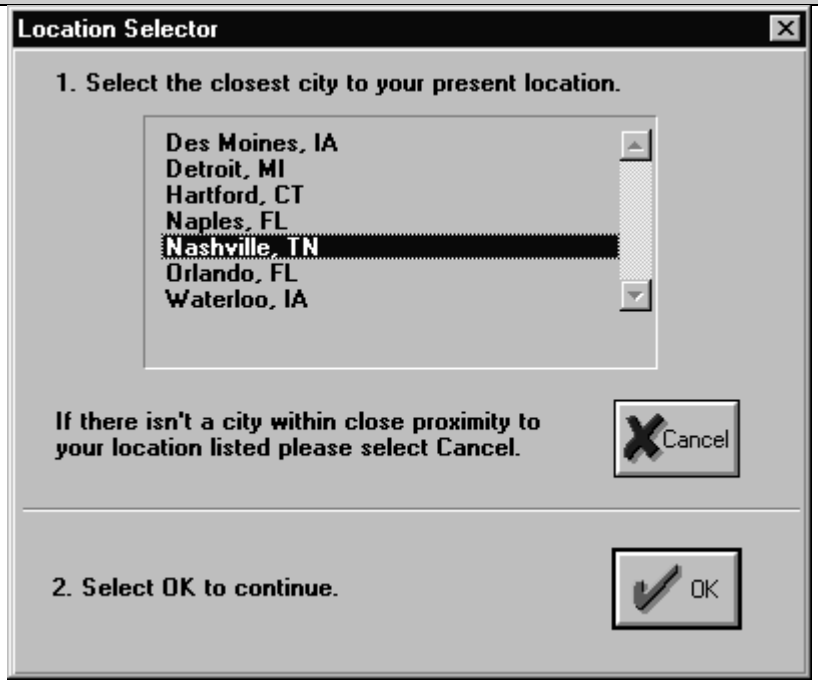

Figure 13

The “Location Selector” window allows the user to choose, from a list of cities, the closest city to their location. The cities listed are the locations of main branch offices for Montgomery-Kone Elevator Corporation. For each city listed, a corresponding password is sent to the elevator control system. The “Location Selector” window gives the user instructions for proceeding with the logon procedure. In this window, the user must select a city and then press the button labeled OK. Pressing the Cancel button will open a window as seen in Figure #14.

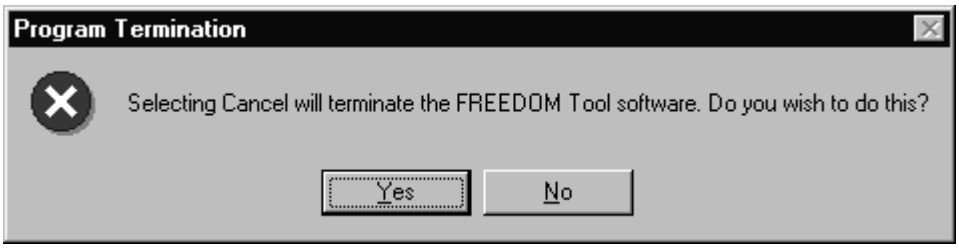

Figure 14

This window verifies the user’s desire to terminate the FREEDOM Tool software. The button labeled Yes will terminate the FREEDOM Tool software upon its selection. If the No button is selected the “Location Selector” window will re-appear giving the user the chance to select the desired city from the list and continuing with the logon process. If the selected city does not have the correct password for the elevator system being diagnosed, a window as seen in Figure #15 will appear.

Figure 15

Figure #15 shows the "Incorrect Password" message window. This window informs the user that an incorrect password was sent to the target elevator system. It instructs the user to verify the nearest branch location and try executing the software, again, after it has terminated. If the nearest branch is not listed or the problem persists, call WORLD electronics for further instructions. The "Incorrect Password" window can only be closed by selecting the OK button. Selecting the OK button terminates the FREEDOM Tool software.

6. When the elevator accepts the logon password from the tool, a window as in Figure #16 will appear.

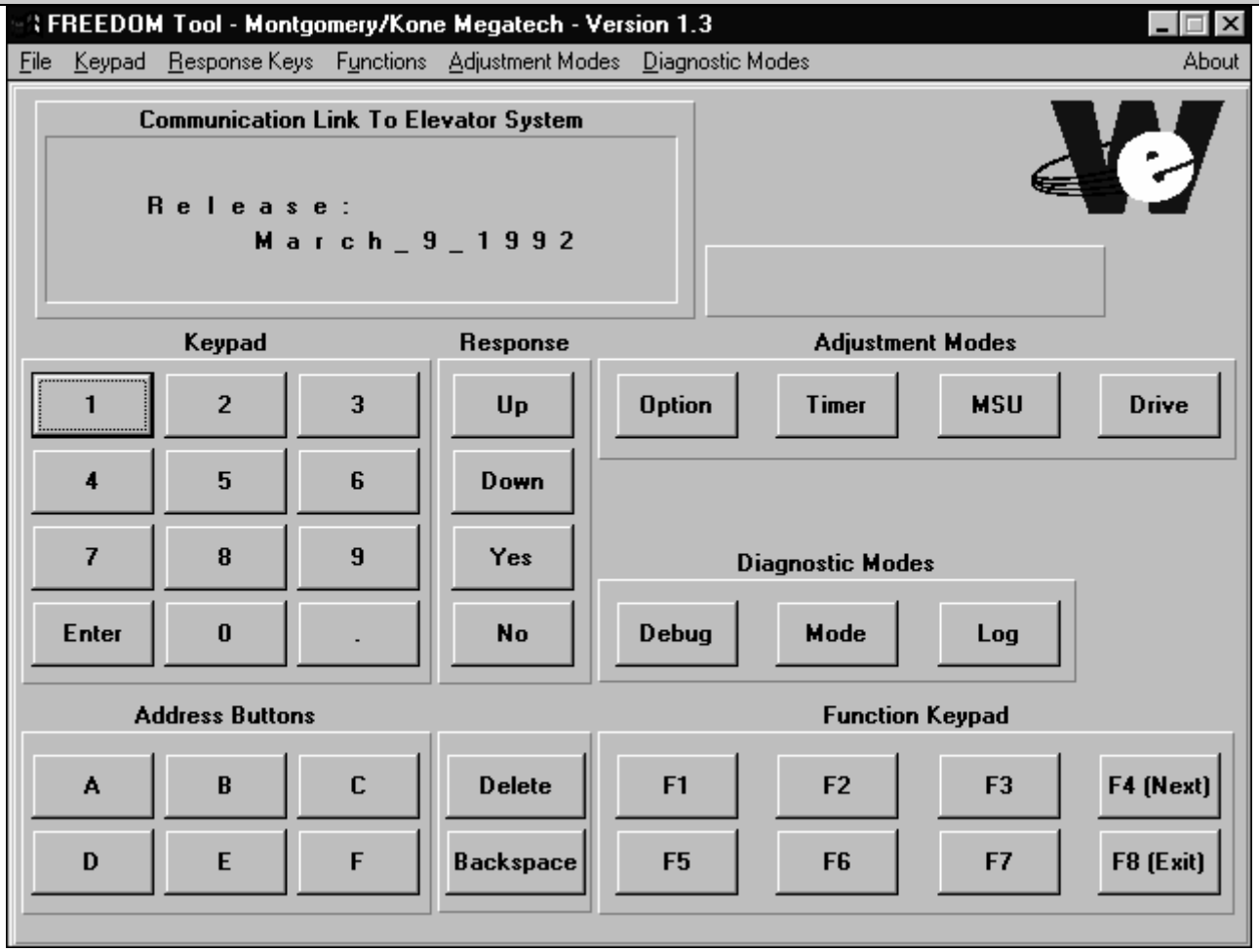

Figure 16

Figure #16 shows the main control window for the MIPROM 21 (Megatech) version of the FREEDOM Tool. When the main control window appears, the tool has logged onto the elevator system successfully. Notice the text, "Release: March_9_1992" in the "Communication Link To Elevator System" section of the main window. This phrase gives the user the installation date of the elevator controller software. The logon procedure handled by the tool is complete at this point. Selecting the button labeled "F8 (Exit) or pressing the "F8" key on the keyboard allows the user to continue with the manual logon procedure. The manual logon procedure consists of selecting the "F8 (Exit)" function until the "Communication Link to Elevator System" has the text "Ready" in it. Refer to Figure #20. When "Ready" appears in the Communication Link to Elevator System window, the user can select any of the function available within the FREEDOM Tool for the MIPROM 21 system. If there are any errors within the elevator system, the tool will display these errors upon selecting the "F8 (Exit)" function during the manual logon procedure. Some windows that may appear during the manual logon procedure are seen in Figures #17 through #19.

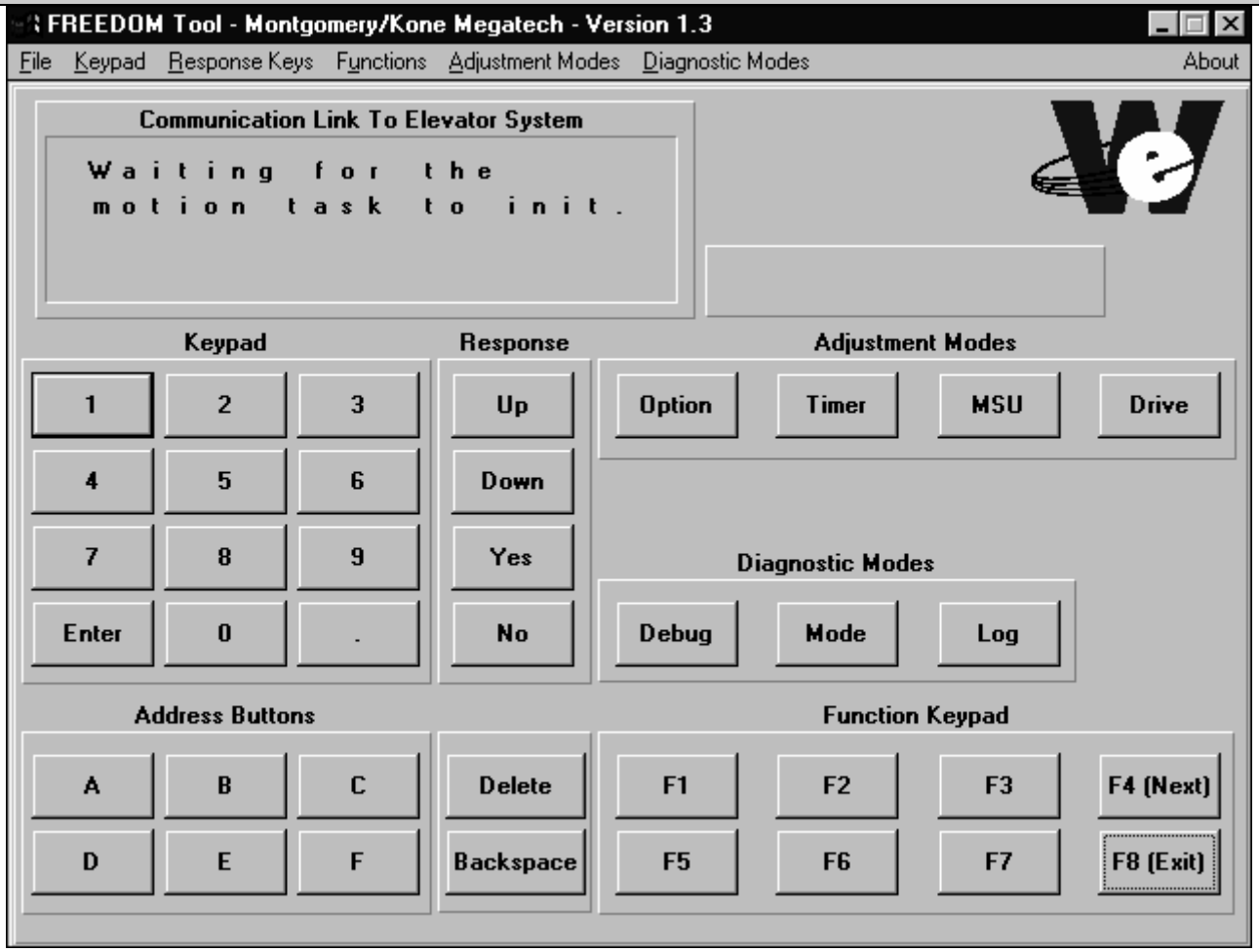
FREEDOM Tool - Montgomery/Kone Megatech - Version 1.3
File Keypad Response Keys Functions Adjustment Modes Diagnostic Modes About
Communication Link To Elevator System
Waiting for the motion task to init.
Keypad
1 2 3
4 5 6
7 8 9
Enter 0 .
Response
Up
Down
Yes
No
Adjustment Modes
Option Timer MSU Drive
Diagnostic Modes
Debug Mode Log
Address Buttons
A B C
D E F
Delete
Backspace
Function Keypad
F1 F2 F3 F4 (Next)
F5 F6 F7 F8 (Exit)

Figure 17

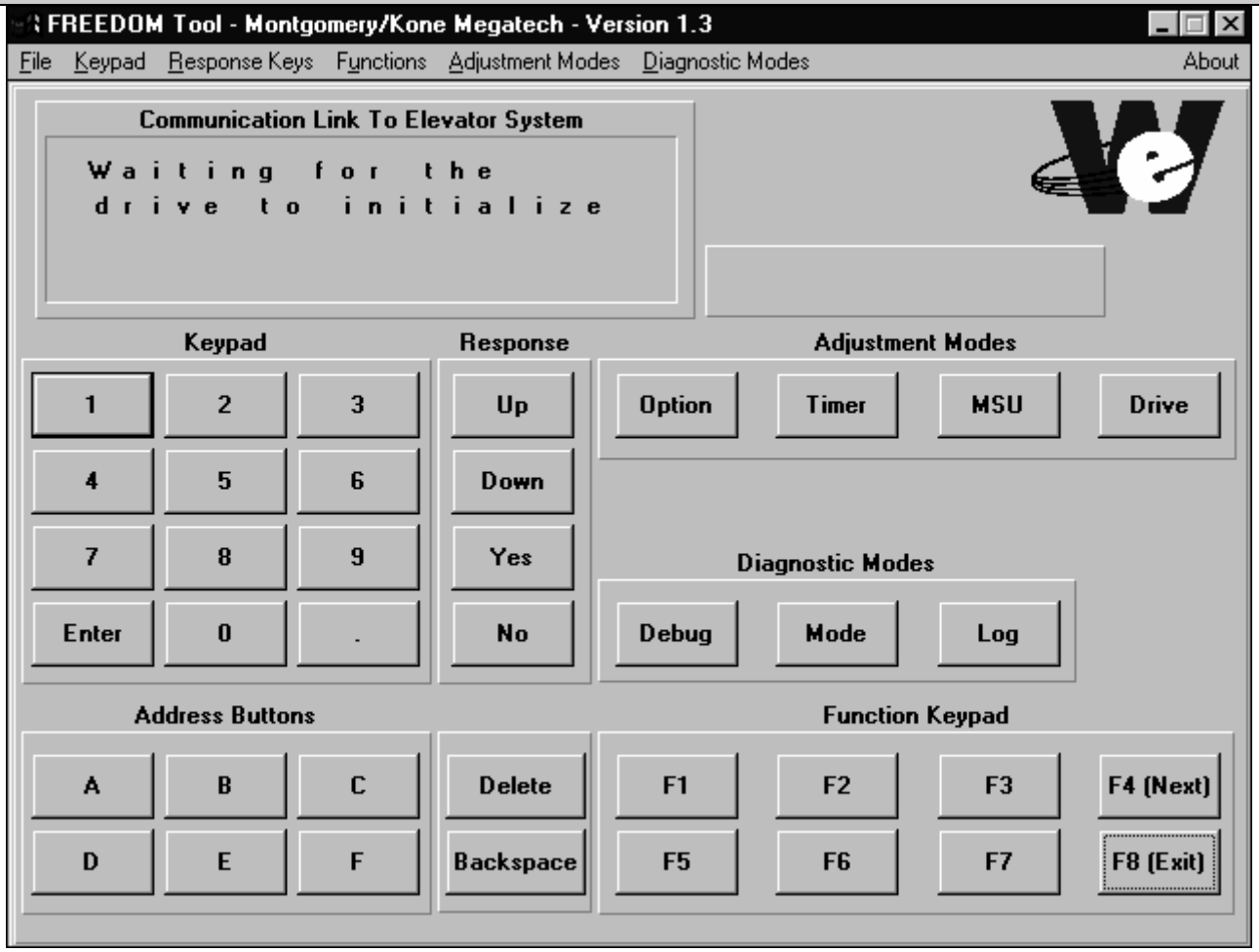
FREEDOM Tool - Montgomery/Kone Megatech - Version 1.3
File
Keypad
Response Keys
Functions
Adjustment Modes
Diagnostic Modes
About
Communication Link To Elevator System
Waiting for the drive to initialize
Keypad
1
2
3
4
5
6
7
8
9
Enter
0
.
Response
Up
Down
Yes
No
Adjustment Modes
Option
Timer
MSU
Drive
Diagnostic Modes
Debug
Mode
Log
Address Buttons
A
B
C
D
E
F
Delete
Backspace
Function Keypad
F1
F2
F3
F4 (Next)
F5
F6
F7
F8 (Exit)

Figure 18

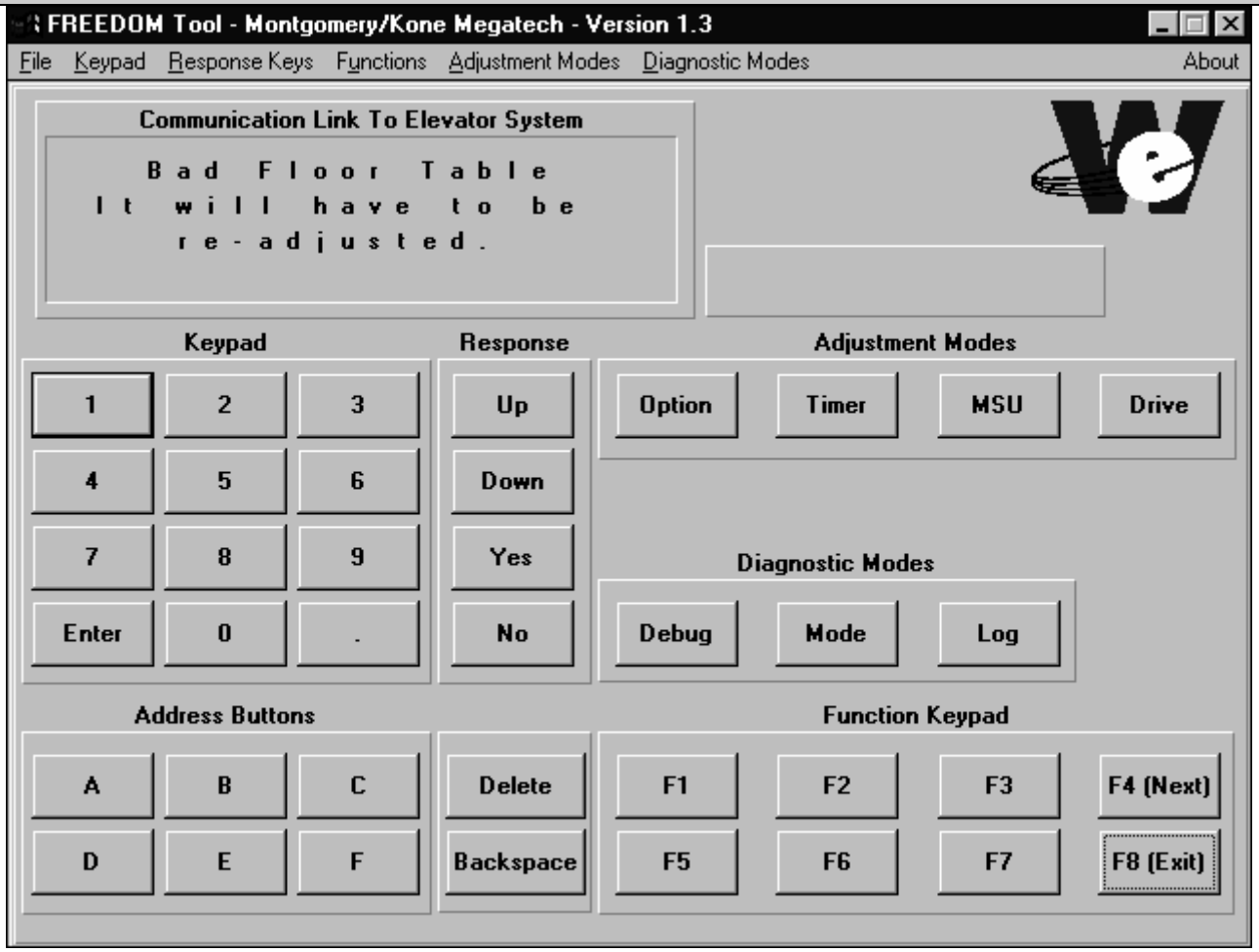
FREEDOM Tool - Montgomery/Kone Megatech - Version 1.3
File Keypad Response Keys Functions Adjustment Modes Diagnostic Modes About
Communication Link To Elevator System
Bad Floor Table
It will have to be
re-adjusted.
Keypad
1 2 3
4 5 6
7 8 9
Enter 0 .
Response
Up
Down
Yes
No
Adjustment Modes
Option Timer MSU Drive
Diagnostic Modes
Debug Mode Log
Address Buttons
A B C
D E F
Delete
Backspace
Function Keypad
F1 F2 F3 F4 (Next)
F5 F6 F7 F8 (Exit)

Figure 19

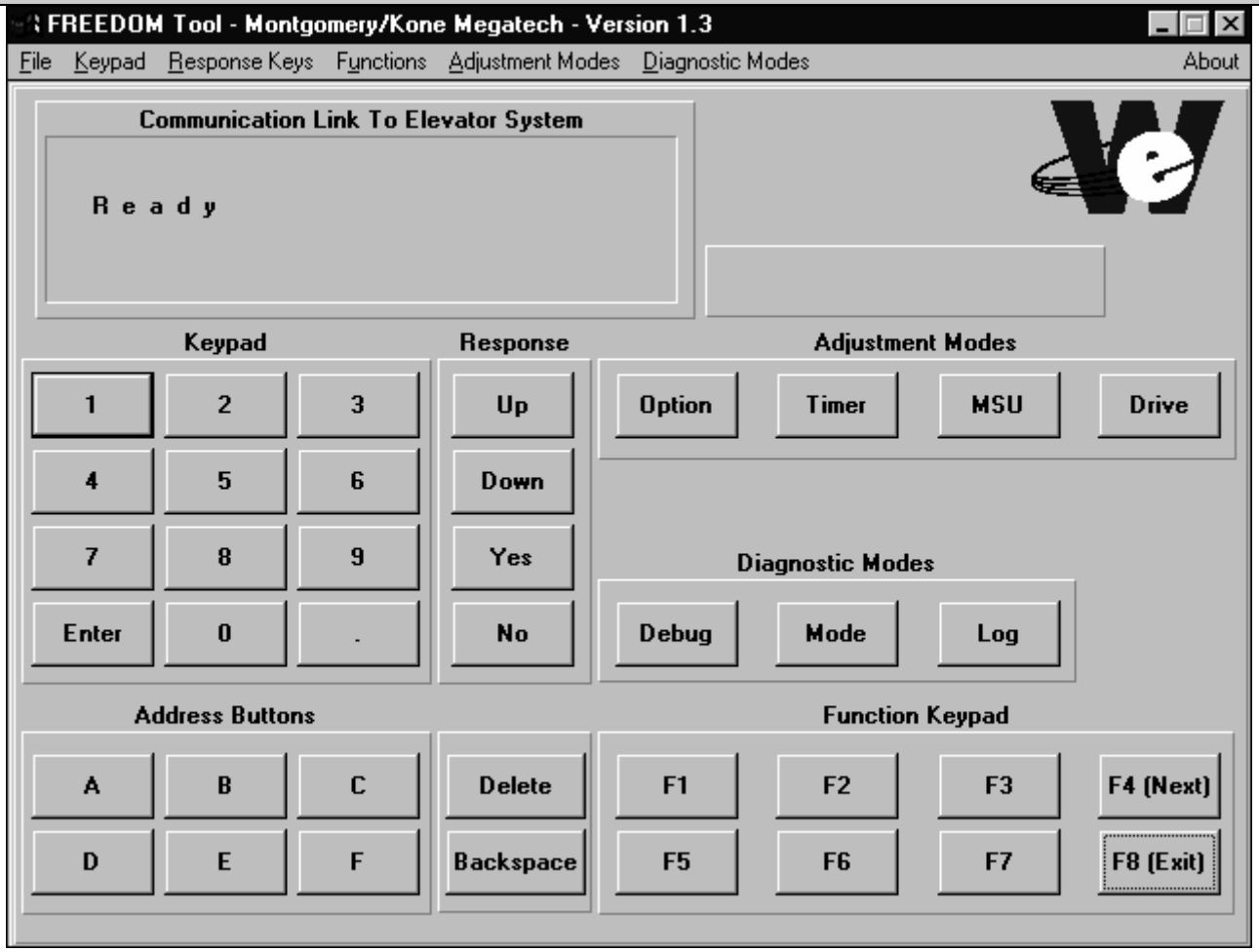
FREEDOM Tool - Montgomery/Kone Megatech - Version 1.3
File
Keypad
Response Keys
Functions
Adjustment Modes
Diagnostic Modes
About
Communication Link To Elevator System
R e a d y
Keypad
1
2
3
4
5
6
7
8
9
Enter
0
.
Response
Up
Down
Yes
No
Adjustment Modes
Option
Timer
MSU
Drive
Diagnostic Modes
Debug
Mode
Log
Address Buttons
A
B
C
D
E
F
Delete
Backspace
Function Keypad
F1
F2
F3
F4 (Next)
F5
F6
F7
F8 (Exit)

Figure 20

General Description:

The FREEDOM Tool is a multi-functional diagnostic tool that allows the user to do everything from diagnosing faults to setting up the elevator system. All software functions can be accessed from the FREEDOM Tool's Main window as seen in Figure #21.

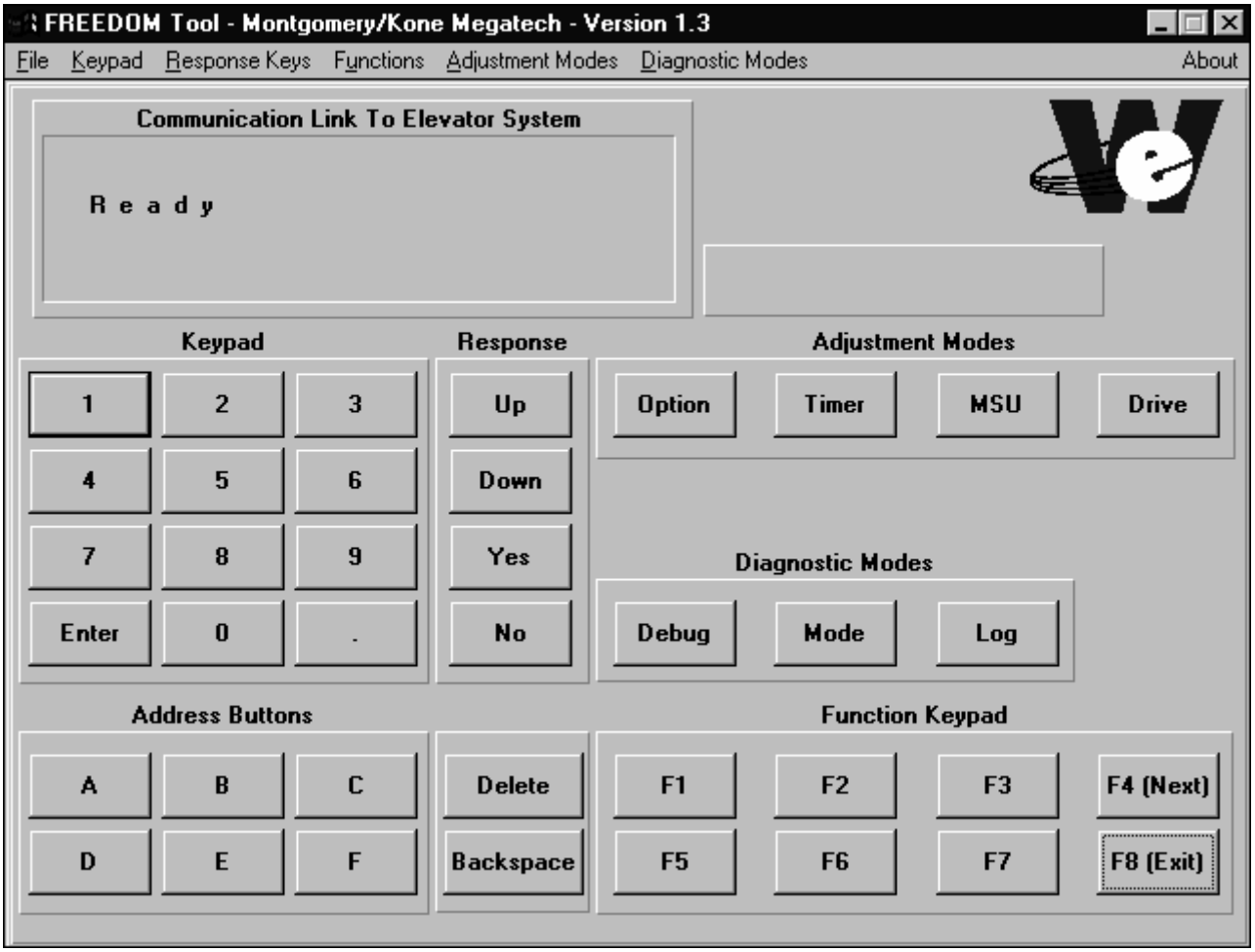

Figure 21

These software functions can be accessed from the main window by means of menu choices, accelerator keys, or the actual push buttons seen on the diagnostic screen. The tool's control window is broken into three sections. These three sections are the Communication Link to Elevator System, the menu, and screen controls. An overview of each of these three sections follows. For more detailed information about the operations of these functions, please review the corresponding section within this manual.

Communication Link to Elevator System:

The window, labeled Communication Link to Elevator System, is exactly as it is titled. Any communication coming from the elevator system to the tool will be displayed within this window.

The information displayed in this window is dependent upon what selection the user selected within the FREEDOM Tool.

- If the Communication's Link window is blank or does not respond when a selection was made, the user should check all connections to the elevator system. If a thorough check of communication link turns up negative, a problem may be occurring within the main processor board of the system.

- To view any of the diagnostic or adjustment modes the Communication Link to Elevator System window must appear as in Figure #21.

Menu:

The Control window allows the user access to the elevator system in two distinct ways. The first of these interfaces is the push button controls found within the control window itself. The second of these interfaces is the menu choices along with their respective accelerators. The MIPROM 21 (Megatech) Software Module has seven menu groups in which certain operations, functions, can be found. These seven menu groups are labeled as follows: File, Keypad, Response Keys, Functions, Adjustment Selections, Diagnostics, and About. A list of all keyboard accelerators appears in Appendix A.

File:

The first of the seven menu groups, File, lets the user exit out of the Montgomery MIPROM 21 (Megatech) software module. The "File" group has a single menu item, as in Figure #22 labeled Exit.

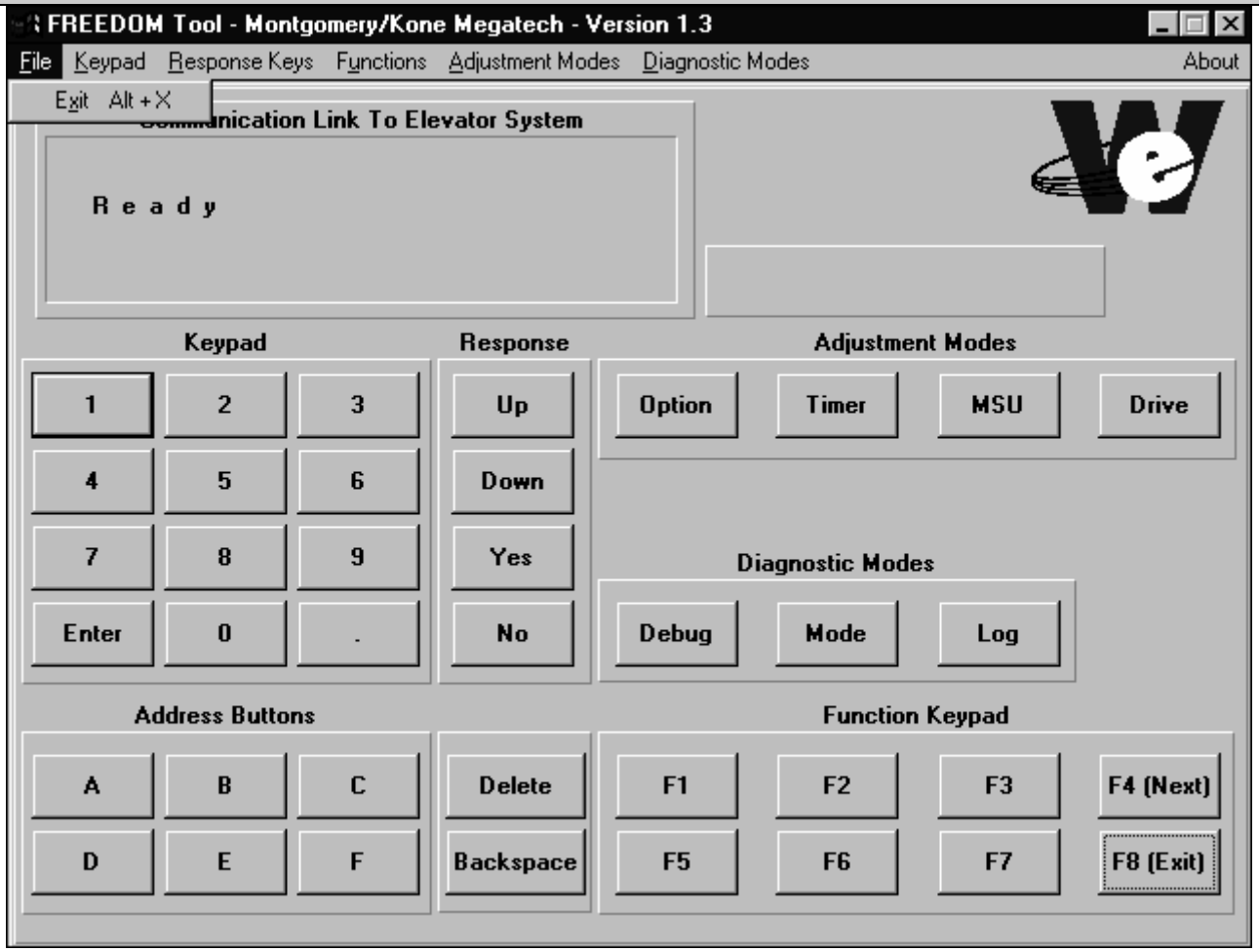

Figure 22

Beside the label Exit is a grouping of text labeled “Ctrl + X”. This second grouping of text is called a keyboard accelerator. A keyboard accelerator allows the user to perform a menu choice without moving the mouse to the menu item. The keyboard accelerator assigned to the Exit function is “Ctrl + X”. To exit out of the Montgomery MIPROM 21 (Megatech) Software Module at any point depress the following keys, “Ctrl” and “X”.

Note: The Montgomery MIPROM 21 elevator system has a procedure for logging off the elevator system. This procedure should be followed at all times when logging off the elevator system. The LogOff procedure is as follows:

1) Select the button “F8 (Exit)” until the Communication Link to Elevator System is updated to show “Ready”.
2) When “Ready” appears select “F8 (Exit)” once more. The Communication Link to Elevator System should update to show “Ready to logoff?”. Refer to Figure #23.

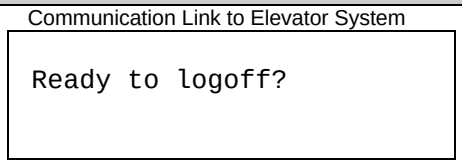

Figure 23

3) When the phrase “Ready to LOGOFF” appears in the Communication Link to Elevator System window, the user can select the Yes button to LOGOFF of the elevator system or No to return the main window. Either the Yes or No button can be selected moving the pointing device over the menu item “Response Keys” and clicking once with the pointing device button. This will cause a menu to drop down allowing the user to select the appropriate response Yes or No. The user can also select the Yes or No response by moving the pointing device cursor over the button Yes or No within the Response section of the main control window and clicking once with the pointing device button. The third option for selecting the response keys Yes and No are simply by pressing the keys “Y” or “N” on the keyboard. When “Yes” is selected, the Communication Link to Elevator System window will update to show “Logged off” as seen in Figure #24. At this point, the Exit menu item may be chosen to exit out of the FREEDOM Tool software module for the Montgomery MIPROM 21 (Megatech).

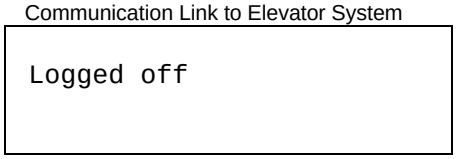

Figure 24

Keypad:

The keypad contains items for handling all numerical entries within the MIPROM 21 - Software Module. Referring to Figure #25, notice that the keypad menu selections consist of the numbers 0 through 9, the hexadecimal numbers A through F, and a decimal. Also within this menu are options that allow the user to Enter, Backspace, and Delete any entry they make. These keypad menu selections also have keyboard accelerators assigned to them. The keypad menu selections and their corresponding accelerators are described as follows:

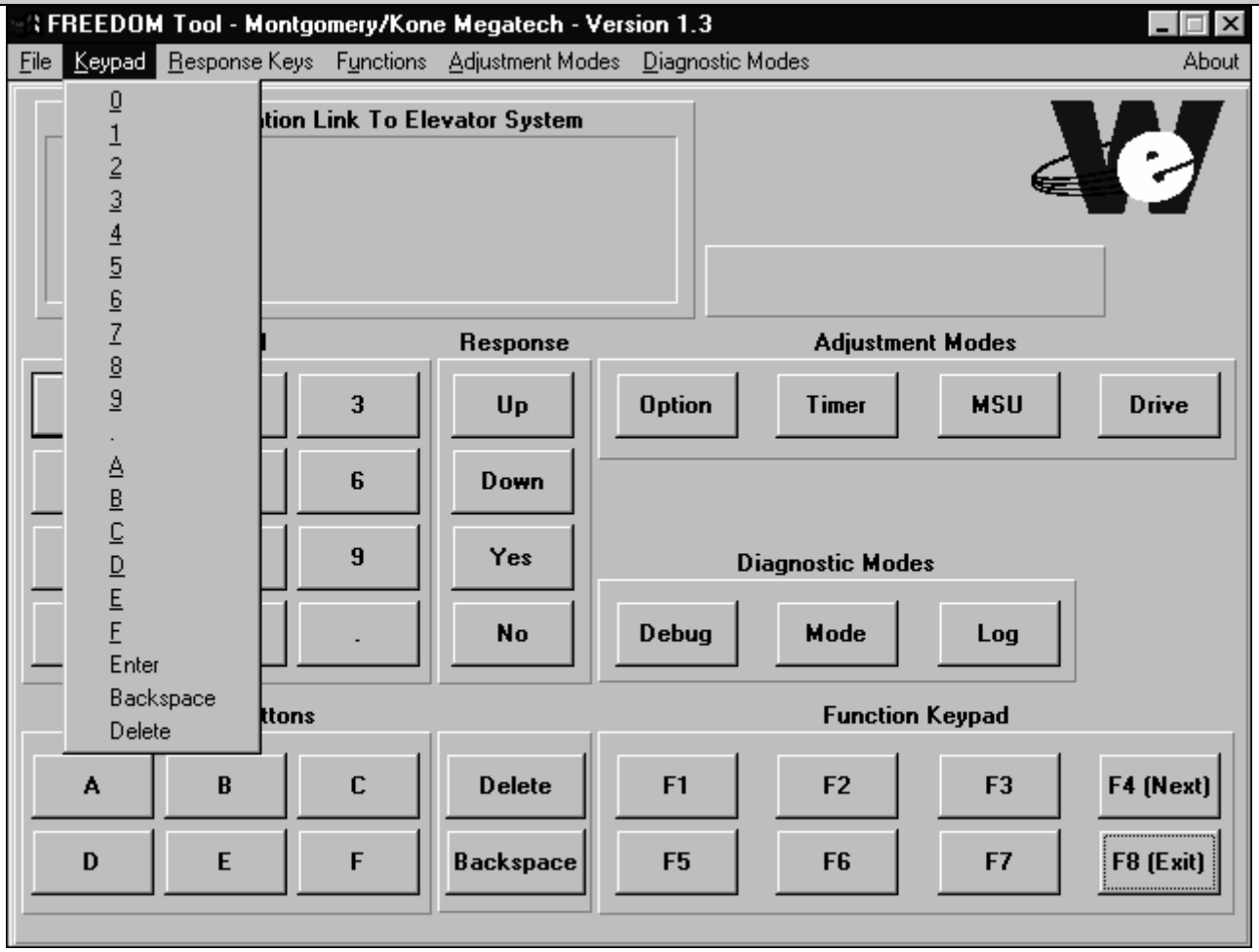

Figure 25

- Numerical Keys (0 – 9):

  The numerical keys, numbered 0 through 9, use the same keyboard accelerators as their numerical value. When a "2" is selected on the keyboard, a "2" will be sent to the tool. Any numerical value entered into the FREEDOM Tool will not be sent to the elevator system until the Enter function is invoked. Each time a keypad key is pressed, the area to the right of the Communication Link to Elevator System window will update to display the key pressed.

- Hexadecimal Keys (A – F):

  The hexadecimal keys, numbered A through F, use the same keyboard accelerators as their literal value. These hexadecimal values can be entered by selecting the desired character from the keypad menu or by using the keyboard accelerator associated with the character. When a "B" is selected on the keyboard, a "B" will be sent to the tool. Any hexadecimal value entered into the FREEDOM Tool will not be sent to the elevator system until the Enter function is invoked. Each time a keypad key is pressed, the area to the right of the

Communication Link to Elevator System window will update to display the key pressed. The hexadecimal keys are used primarily in the dump and write memory functions of the MIPROM 21 - software module. Appendix B explains the Hexadecimal numbering system.

- Decimal (.):

  Some adjustments and functions of the MIPROM 21 - Software Module require the user to enter a decimal character into a numerical value, or as a separator for items like dates and times. To select the decimal character the user can select the decimal character from the Keypad menu or by simply pressing the "." key on the keyboard. When the "." is selected the region to the right of the Communication Link to Elevator System window will update to show the decimal character.

- Backspace:

  The Backspace function can be selected from the Keypad menu to remove the last numerical value, hexadecimal value, or decimal point selected by the user. Using the Backspace function removes the last keypad item selected from the message to be sent to the elevator system. It also updates the region to the right of the Communication Link to Elevator System window by removing the last keypad value on the display. The keyboard accelerator for the Backspace function is the key labeled "Backspace" on the keyboard.

- Delete:

  The Delete function can be selected from the Keypad menu to remove the all of the numerical values, hexadecimal values, or decimal points selected by the user. All of the keypad items selected for the message to be sent to the elevator system are removed by using the Delete function. It also updates the region to the right of the Communication Link to Elevator System window by clearing all values on the display. The keyboard accelerator for the Delete function is the key labeled "Delete" on the keyboard.

- Enter:

  All Keypad menu selection items, when selected, are stored in a buffer to be transmitted to the elevator system. These values are not sent to the elevator system until the user instructs the FREEDOM Tool MIPROM 21 - Software Module to do this. The command used by the FREEDOM Tool MIPROM 21 - Software Module is the Enter function. The Enter function can be selected by moving the pointing device cursor over the menu item "Keypad" and clicking once with the pointing device. Once the "Keypad" menu has dropped down, the user can select the menu item "Enter". The keyboard accelerator assigned to the Enter function is the button labeled "Enter" on the keyboard. When the Enter function is selected, the numerical data displayed to the right of the Communication Link to Elevator System window is sent to the elevator system and cleared from the display region.

Response Keys:

The MIPROM 21 - Software Module at certain points requests a response from the user in the form of a Yes or No answer or as a direction Up and Down. Refer to Figure #26. The Response Keys menu selection gives the user the opportunity to send these responses to the elevator system.

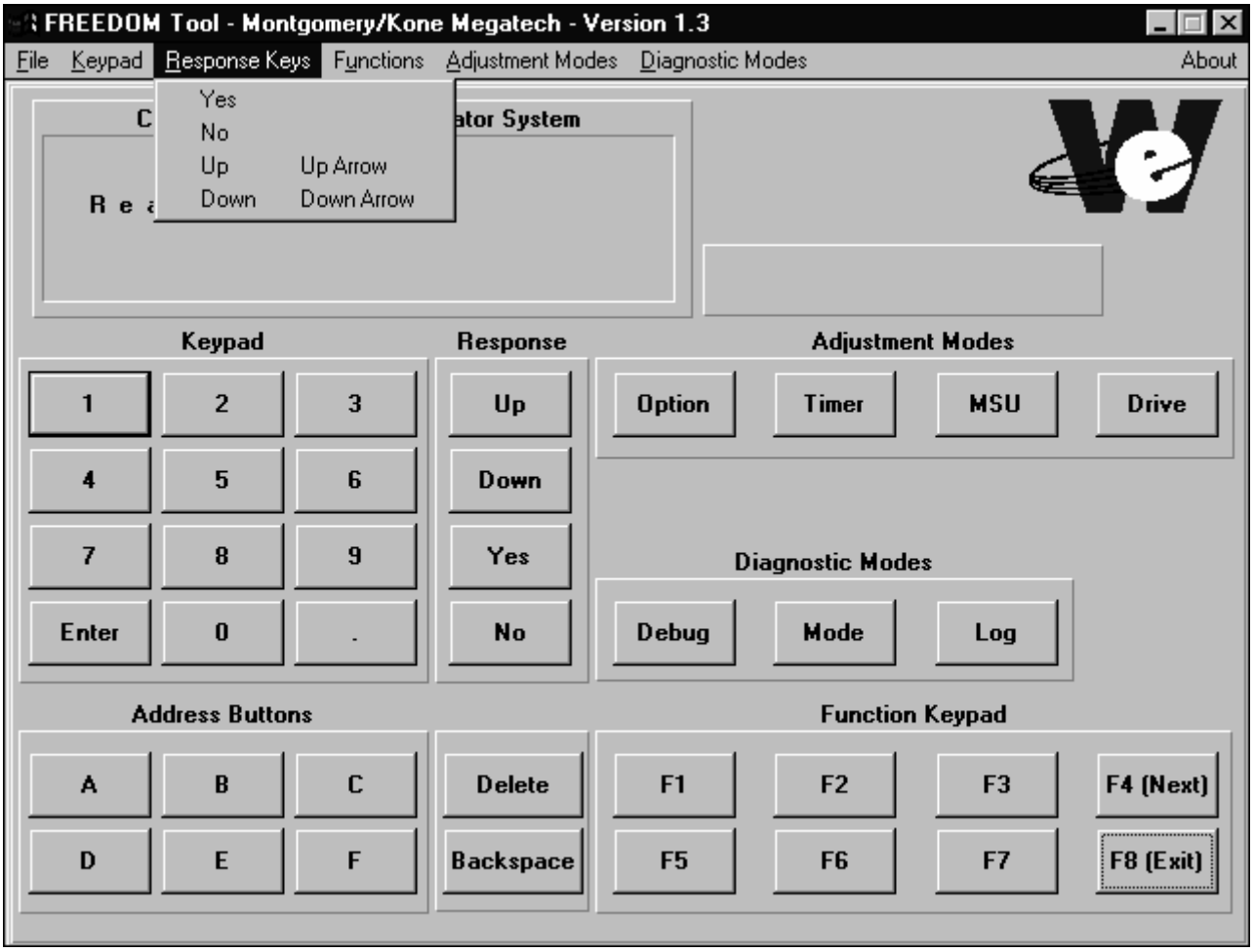

Figure 26

- Yes (Y):

  The Yes selection within the Response Keys menu sends a “Yes” response to the Montgomery MIPROM 21 (Megatech) elevator systems. The user commands the tool to respond to the elevator system by selecting Yes from the Response Keys menu or simply by pressing the “Y” key upon the notebook computer’s keyboard.

- No (N):

  The No selection within the Response Keys menu sends a “No” response to the Montgomery MIPROM 21 (Megatech) elevator systems. The user commands the tool to respond to the elevator system by selecting No from the Response Keys menu or simply by pressing the “N” key upon the notebook computer’s keyboard.

- Up (↑):

  The Up selection within the Response Keys menu sends an “Up” response to the Montgomery MIPROM 21 (Megatech) elevator systems. The user commands the tool to respond to the elevator system by selecting Up from the Response Keys menu or simply by pressing the “↑” key upon the notebook computer’s keyboard.

- Down (↓):

  The Down selection within the Response Keys menu sends a “Down” response to the Montgomery MIPROM 21 (Megatech) elevator systems. The user commands the tool to respond to the elevator system by selecting Down from the Response Keys menu or simply by pressing the “↓” key upon the notebook computer’s keyboard.

Functions:

There is a set of command sequences the MIPROM 21 - Software Module use to select certain options, step through lists, and exit out of certain areas. Figure #27 shows the main control window of the MIPROM 21 - Software Module with the Functions menu selected.

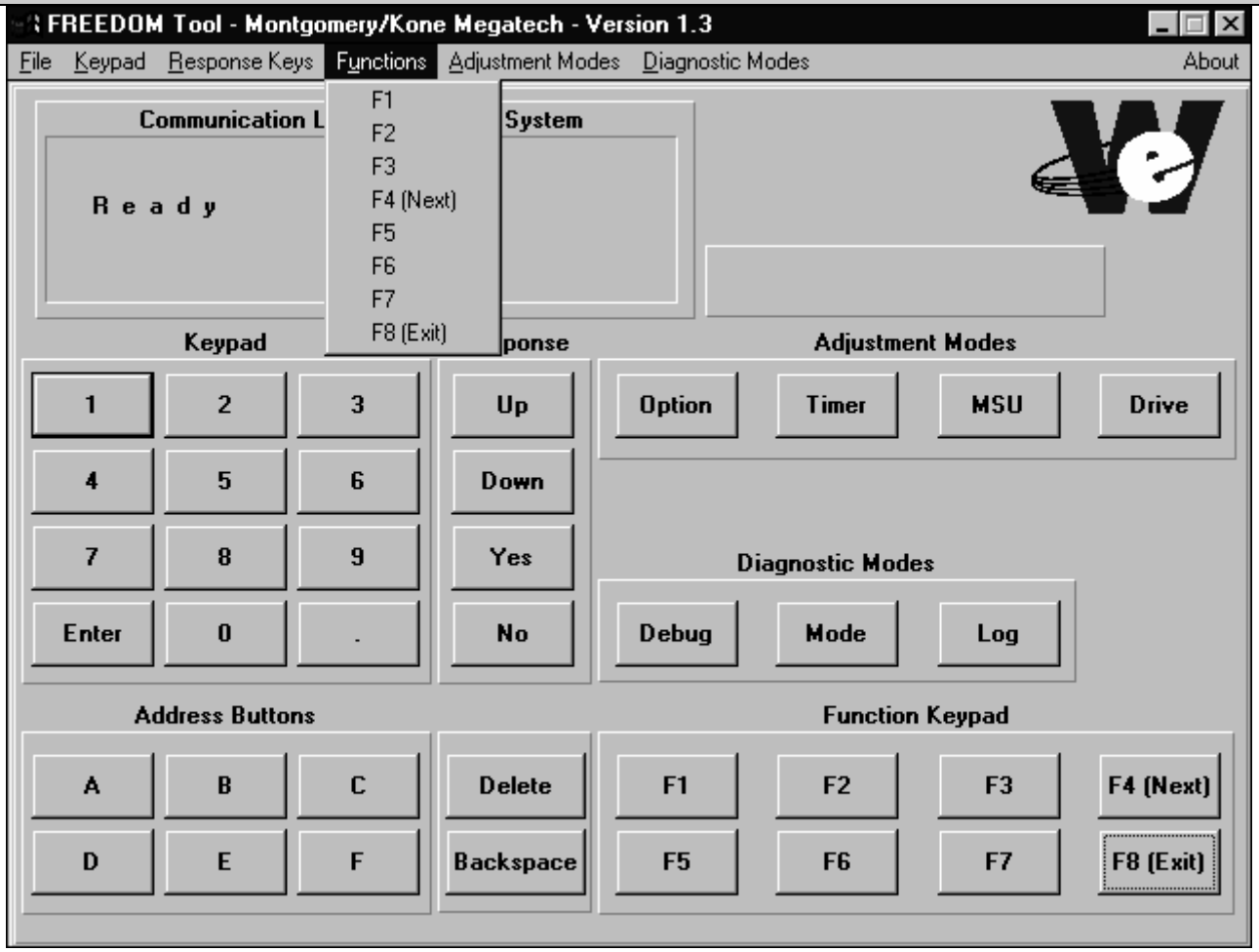

Figure 27

Some function selections within the MIPROM 21 - Software Module have multiple meanings. The available function selections within the MIPROM 21 - Software Module are described as follows:

- F1:

  The F1 selection within the Functions menu often is used within a main “menu” section of the various operating modes of the MIPROM 21 - Software Module. Whenever the user is within an adjustment or diagnostic selection, the F1 key is used to select the first choice within the Communication Link to Elevator System window. The F1 function is also used to set a variable up in adjustment mode, toggle a feature to an active (TRUE) state, or select a specific item within a sub-menu of the Communication Link to Elevator System window. The F1 function uses the keyboard key “F1” as its keyboard shortcut. Selecting F1 on the Functions menu or using its keyboard accelerator will send the F1 command to the elevator system.

- F2:

  The F2 selection within the Functions menu often is used within a main “menu” section of the various operating modes of the MIPROM 21 - Software Module. Whenever the user is within an adjustment or diagnostic selection, the F2 key is used to select the second choice within the Communication Link to Elevator System window. The F2 function is also used to toggle a feature to an inactive (FALSE) state or select a specific item within a sub-menu of the Communication Link to Elevator System window. The F2 function uses the keyboard key “F2” as its keyboard shortcut. Selecting F2 on the Functions menu or using its keyboard accelerator will send the F2 command to the elevator system.

- F3:

  The F3 selection within the Functions menu often is used within a main “menu” section of the various operating modes of the MIPROM 21 - Software Module. Whenever the user is within an adjustment or diagnostic mode, the F3 key is used to select the third choice within the Communication Link to Elevator System window. The F3 function is also used to move backward through a sub menu of adjustments, or select a specific item within a sub-menu selection of the Communication Link to Elevator System window. The F3 function uses the keyboard key “F3” as its keyboard shortcut. Selecting F3 on the Functions menu or using its keyboard accelerator will send the F3 command to the elevator system.

- F4 (Next):

  A very important key within the MIPROM 21 - Software Module, the F4 (Next) selection within the Functions menu is used to scroll, forward, through a list of adjustment and diagnostic selections whenever the user is in an adjustment or diagnostic mode. The F4 (Next) function uses the keyboard key “F4” as its keyboard shortcut. Selecting F4 (Next) on the Functions menu or using its keyboard accelerator will send the F4 command to the elevator system.

- F5:

  In submenus of the adjustment and diagnostic modes of the MIPROM 21 - Software Module, the function F5 is used to select the first item on the list shown within the Communication Link to Elevator System window. The F5 function uses the keyboard key “F5” as its keyboard shortcut. Selecting F5 on the Functions menu or using its keyboard accelerator will send the F5 command to the elevator system.

- F6:

  In submenus of the adjustment and diagnostic modes of the MIPROM 21 - Software Module, the function F6 is used to select the first item on the list shown within the Communication Link to Elevator System window. The F6 function uses the keyboard key “F6” as its keyboard shortcut. Selecting F6 on the Functions menu or using its keyboard accelerator will send the F6 command to the elevator system.

- F7:

  In submenus of the adjustment and diagnostic modes of the MIPROM 21 - Software Module, the function F7 is used to select the first item on the list shown within the Communication Link to Elevator System window. The F7 function uses the keyboard key "F7" as its keyboard shortcut. Selecting F7 on the Functions menu or using its keyboard accelerator will send the F7 command to the elevator system.

- F8 (Exit):

  A very important key within the MIPROM 21 - Software Module, the F8 (Exit) selection within the Functions menu is used to back out of a current view within the Communication Link to Elevator System window. As mentioned in the Logon procedure, the F8 (Exit) function is also used to proceed through the error messages to get to the "Ready" screen. The F8(Exit) key is very important in logging off of the elevator system. When logging off of the elevator system the F8 (Exit) function should be used until the Communication Link to Elevator System window updates to show "Ready to logoff?". The F8 (Exit) function uses the keyboard key "F8" as its keyboard shortcut. Selecting F8 (Exit) on the Functions menu or using its keyboard accelerator will send the F8 command to the elevator system.

Adjustment Modes:

The FREEDOM Tool MIPROM 21 - Software Module has a mode of operation that allows the user to adjust various variables, modes of operation, and features of the MIPROM 21 (Megatech) elevator system. This mode, the Adjustment Mode, can be accessed by moving the computer's pointing device cursor over the menu selection "Adjustment Modes". When the user presses the pointing device button when the cursor is over this menu item, a list of 4 individual Adjustment Modes will appear as in Figure #28.

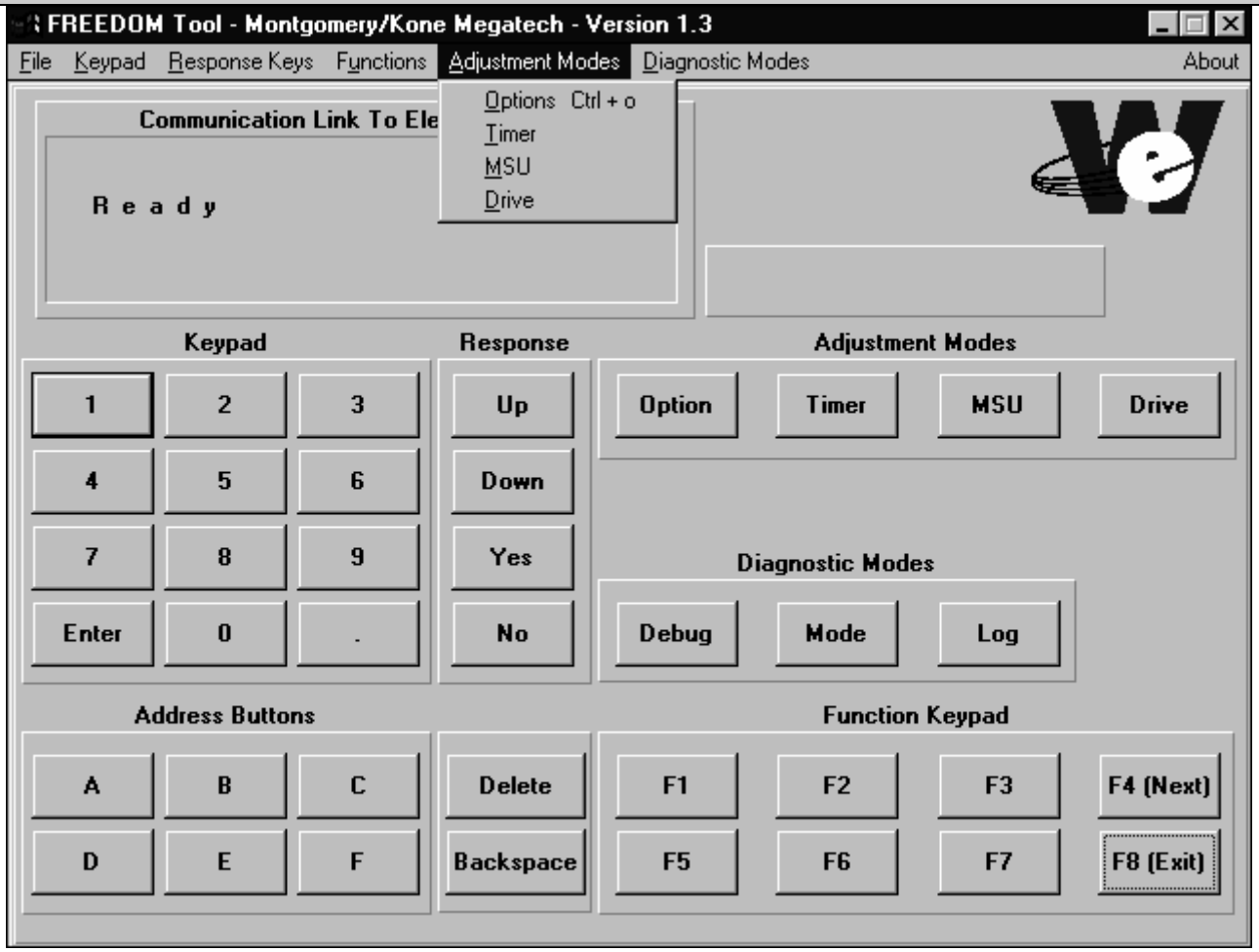

Figure 28

The four Adjustment Modes are Options, Timers, MSU, and Drive. It is important to notice that before entering any of the Adjustment Modes the Communication Link to Elevator System window should show the text “Ready”. If “Ready is not displayed within the Communication Link to Elevator System window, the tool will not act upon any of the Adjustment Mode selections. The F8 (Exit) function is used to back out of the current tool mode to the “Ready” screen. A brief description of each Adjustment Mode follows:

- Options (Ctrl + O):

  The Option Adjustment Mode of the MIPROM 21 - Software Module allows the user to adjust normal operations within the elevator system. All features found within the Option Adjustment Mode are described, in detail, within the Option section of the Adjustment Modes section of this manual. To access the Option Adjustment Mode of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the menu item Adjustment Modes and click once with the pointing device button. After the Adjustment Modes menu has been selected, a second menu will drop down showing the user the four

different Adjustment Modes. The user would move the pointing device cursor over the selection “Option” on the menu and click once with the pointing device button. The user may also use a keyboard accelerator consisting of the “Control” key along with the “O” key.

- Timer (Ctrl +T):

  The Timer Adjustment Mode of the MIPROM 21 - Software Module allows the user to adjust various timed operations within the elevator system. All features found within the Timer Adjustment Mode are described, in detail, within the Timer section of the Adjustment Modes section of this manual. To access the Timer Adjustment Mode of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the menu item Adjustment Modes and click once with the pointing device button. After the Adjustment Modes menu has been selected, a second menu will drop down showing the user the four different Adjustment Modes. The user would move the pointing device cursor over the selection “Timer” on the menu and click once with the pointing device button. The user may also use a keyboard accelerator consisting of the “Control” key along with the “T” key.

- MSU (Ctrl + M):

  The MSU Adjustment Mode of the MIPROM 21 - Software Module allows the user to adjust any floor heights and motion of the elevator system. All features found within the MSU Adjustment Mode are described, in detail, within the MSU section of the Adjustment Modes section of this manual. To access the MSU Adjustment Mode of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the menu item Adjustment Modes and click once with the pointing device button. After the Adjustment Modes menu has been selected, a second menu will drop down showing the user the four different Adjustment Modes. The user would move the pointing device cursor over the selection “MSU” on the menu and click once with the pointing device button. The user may also use a keyboard accelerator consisting of the “Control” key along with the “M” key.

- Drive (Ctrl + D):

  The Drive adjustment mode of the MIPROM 21 - Software Module allows the user to adjust any variables dealing with the drive operation. It also gives the user the ability to setup and diagnose the Montgomery drive system. All features found within the Drive Adjustment Mode are described, in detail, within the Drive section of the Adjustment Modes section of this manual. To access the Drive Adjustment Mode of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the menu item Adjustment Modes and click once with the pointing device button. After the Adjustment Modes menu has been selected, a second menu will drop down showing the user the four different Adjustment Modes. The user would move the pointing device cursor over the selection “Drive” on the menu and click once with the pointing device button. The user may also use a keyboard accelerator consisting of the “Control” key along with the “D” key.

Diagnostic Modes:

The Diagnostic Modes allow the user to evaluate different systems within the elevator system. Among the things the elevator system allows the user to diagnose are I/O signals, error codes, and operational statuses. Figure #29 shows the main control window of the FREEDOM Tool MIPROM 21 - Software Module with the Diagnostic Modes menu opened.

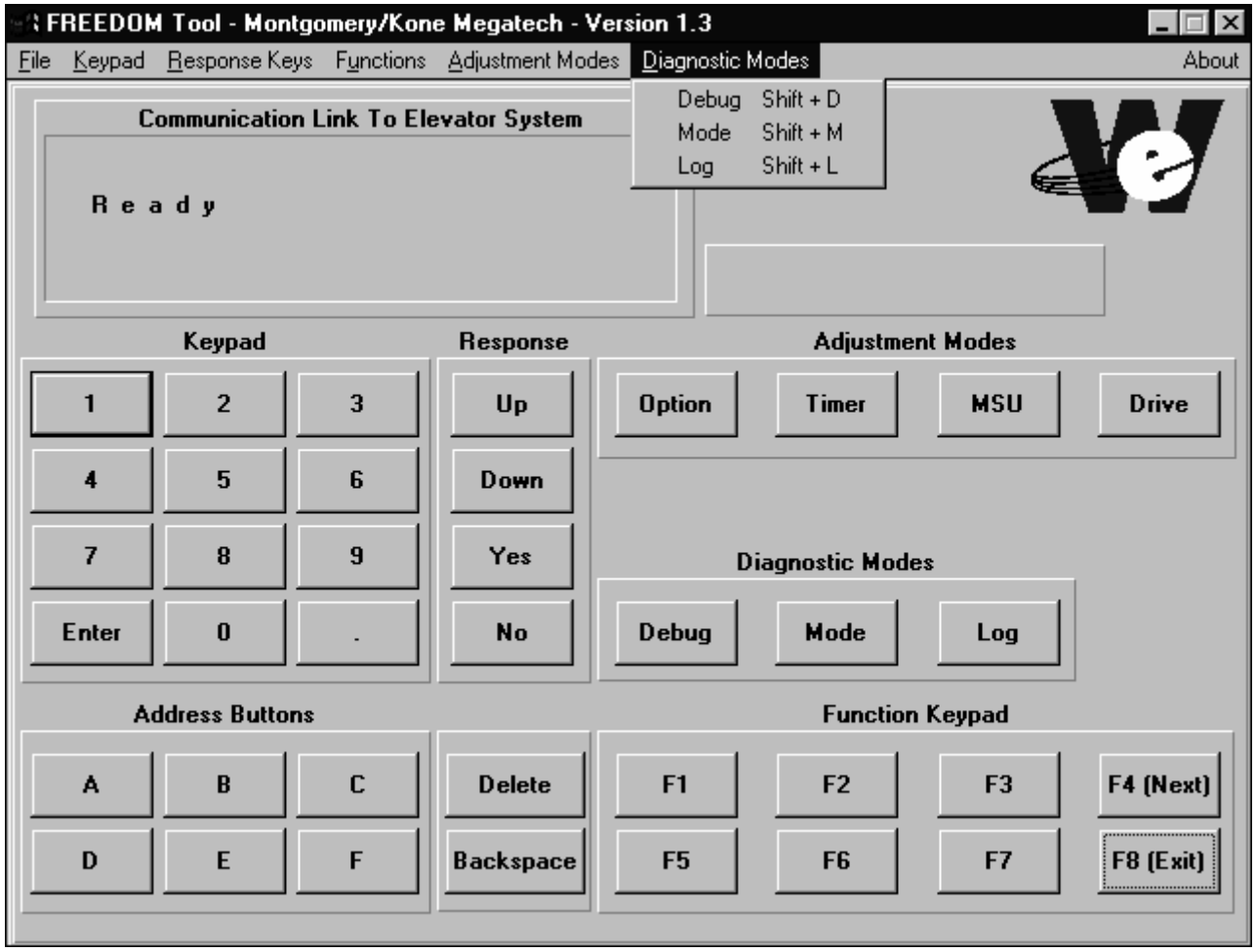

Figure 29

The three Diagnostic Modes are Debug, Mode, and Log. It is important to notice that before entering any of the Diagnostic Modes the Communication Link to Elevator System window should show the text “Ready”. If “Ready is not displayed within the Communication Link to Elevator System window, the tool will not act upon any of the Diagnostic Mode selections. The F8 (Exit) function is used to exit out of the current mode and return to the “Ready” screen. A brief description of each Diagnostic Mode follows:

- Debug (Shift + D):

  The Debug Diagnostic Mode of the MIPROM 21 - Software Module allows the user to view all inputs and outputs, check different systems within the elevator, and check the contents of memory within the elevator system. All items found within the Debug Diagnostic Mode are described, in detail, within the Debug section of the Diagnostic Modes section of this manual. To access the Debug Diagnostic Mode of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the menu item Diagnostic Modes and click once with the pointing device button. After the Diagnostic Modes menu has dropped down, move the pointing device cursor over the Debug label and click once with the pointing device button. A keyboard combination of “Shift” and “D” can be used to enter the Debug mode.

- Mode(Shift + M):

  The Mode Diagnostic Routine of the MIPROM 21 - Software Module allows the user to perform tests upon the I/O of the elevator system. All items found within the Mode Diagnostic Routine are described, in detail, within the Mode section of the Diagnostic Modes section of this manual. To access the Mode Diagnostic Routine of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the menu item Diagnostic Modes and click once with the pointing device button. After the Diagnostic Modes menu has dropped down, move the pointing device cursor over the Mode label and click once with the pointing device button. A keyboard combination of “Shift” and “M” can be used to enter the Mode routine.

- Log (Shift + L):

  The Log Diagnostic Mode of the MIPROM 21 - Software Module allows the user to view all error logs and system resets within the elevator system. All items found within the Log Diagnostic Mode are described, in detail, within the Log section of the Diagnostic Modes section of this manual. To access the Log Diagnostic Mode of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the menu item Diagnostic Modes and click once with the pointing device button. After the Diagnostic Modes menu has dropped down, move the pointing device cursor over the Log label and click once with the pointing device button. A keyboard combination of “Shift” and “L” can be used to enter the Log mode.

Screen Controls:

The screen controls within the Montgomery MIPROM 21 (Megatech) Software Module can be broken up into five distinct sections. Each of these sections has a corresponding menu allowing the user three ways to enable the operation of each particular screen control. The five distinct sections within the screen controls are the Numerical Keypad, Response Keys, Function Keys, Adjustment Mode, and Diagnostic Mode.

Keypad:

The keypad contains items for handling all numerical entries within the MIPROM 21 - Software Module. Referring to Figure #30, notice that the keypad button selections consist of the numbers 0 through 9, the hexadecimal numbers A through F, and a decimal. Also within this menu are options that allow the user to Enter, Backspace, and Delete any entry they make. These keypad button selections also have keyboard accelerators assigned to them. The keypad button selections and their corresponding accelerators are described as follows:

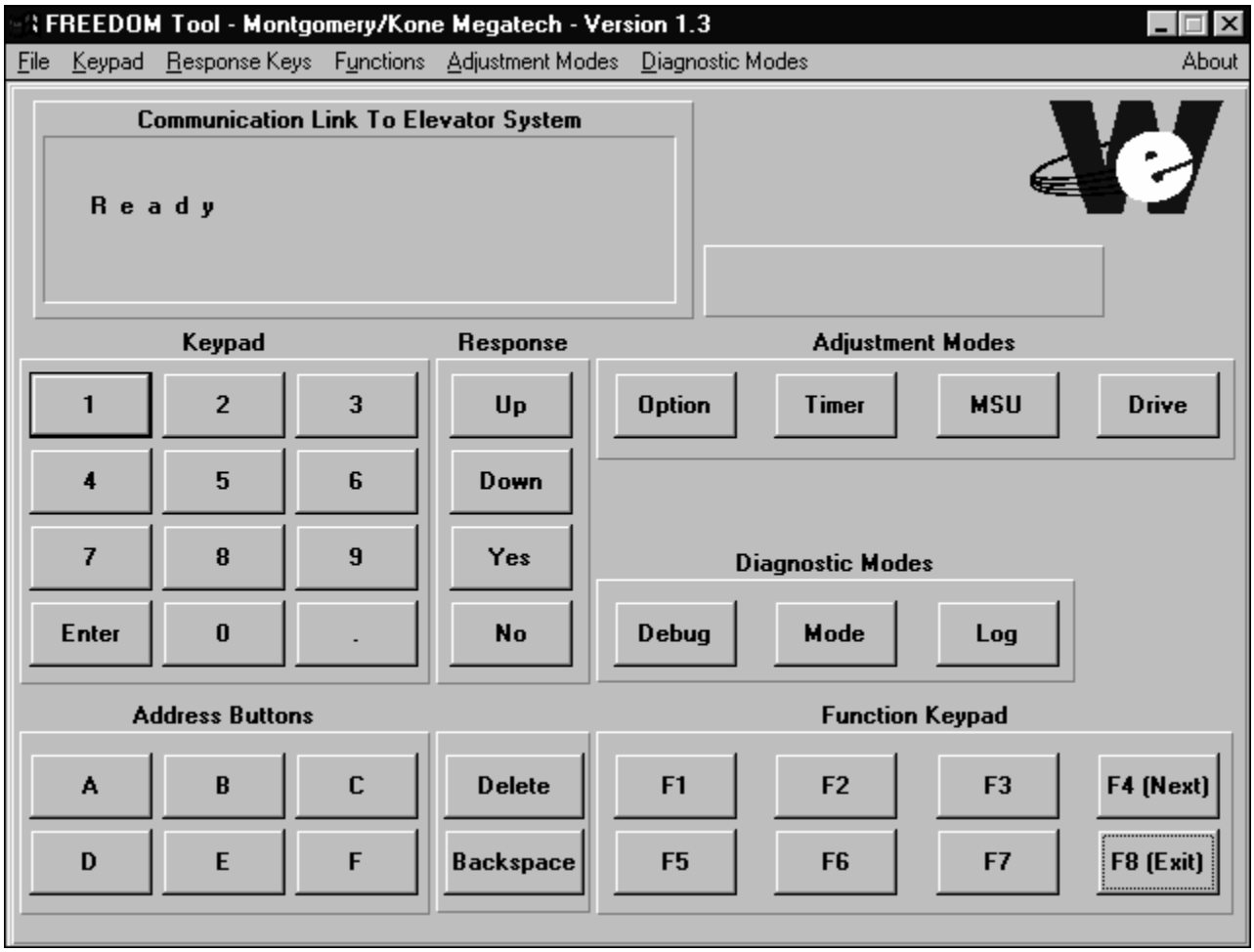

Figure 30

- Numerical Keys (0 – 9):

  The numerical keys, numbered 0 through 9, use the same keyboard accelerators as their numerical value. When a “2” is selected on the keyboard, a “2” will be sent to the tool. Any numerical value entered into the FREEDOM Tool will not be sent to the elevator system until the Enter function is invoked. Each time a keypad key is pressed, the area to the right of the Communication Link to Elevator System window will update to display the key pressed.

- Hexadecimal Keys (A – F):

  The hexadecimal keys, numbered A through F, use the same keyboard accelerators as their literal value. These hexadecimal values can be entered by selecting the desired character from the keypad or by using the keyboard accelerator associated with the character. When a “B” is selected on the keyboard, a “B” will be sent to the tool. Any hexadecimal value entered into the FREEDOM Tool will not be sent to the elevator system until the Enter function is invoked. Each time a keypad key is pressed, the area to the right of the Communication Link to Elevator System window will update to display the key pressed. The hexadecimal keys are used primarily in the dump and write memory functions of the MIPROM 21 - Software Module. Appendix B explains the Hexadecimal numbering system.

- Decimal (.):

  Some adjustments and functions of the MIPROM 21 - Software Module require the user to enter a decimal character into a numerical value, or as a separator for items like dates and times. To select the decimal character the user can select the decimal character from the Keypad or by simply pressing the “.” key on the keyboard. When the “.” is selected the region to the right of the Communication Link to Elevator System window will update to show the decimal character.

- Backspace:

  The Backspace function can be selected from the Keypad to remove the last numerical value, hexadecimal value, or decimal point selected by the user. Using the Backspace function removes the last keypad item selected from the message to be sent to the elevator system. It also updates the region to the right of the Communication Link to Elevator System window by removing the last keypad value on the display. The keyboard accelerator for the Backspace function is the key labeled “Backspace” on the keyboard.

- Delete:

  The Delete function can be selected from the Keypad to remove the all of the numerical values, hexadecimal values, or decimal points selected by the user. All of the keypad items selected for the message to be sent to the elevator system are removed by using the Delete function. It also updates the region to the right of the Communication Link to Elevator System window by clearing all values on the display. The keyboard accelerator for the Delete function is the key labeled “Delete” on the keyboard.

- Enter:

  All Keypad selection items, when selected, are stored in a buffer to be transmitted to the elevator system. These values are not sent to the elevator system until the user instructs the FREEDOM Tool MIPROM 21 - Software Module to do this. The command used by the FREEDOM Tool MIPROM 21 - Software Module is the Enter function. The Enter function can be selected by moving the pointing device cursor over the button labeled “Enter” and click once. The keyboard accelerator assigned to the Enter function is the button labeled

"Enter" on the keyboard. When the Enter function is selected, the numerical data displayed to the right of the Communication Link to Elevator System window is sent to the elevator system and cleared from the display region.

Response Keys:

The MIPROM 21 - Software Module at certain points requests a response from the user in the form of a Yes or No answer or as a direction Up and Down. Refer to Figure #31. The Response Keys button selections gives the user the opportunity to send these responses to the elevator system.

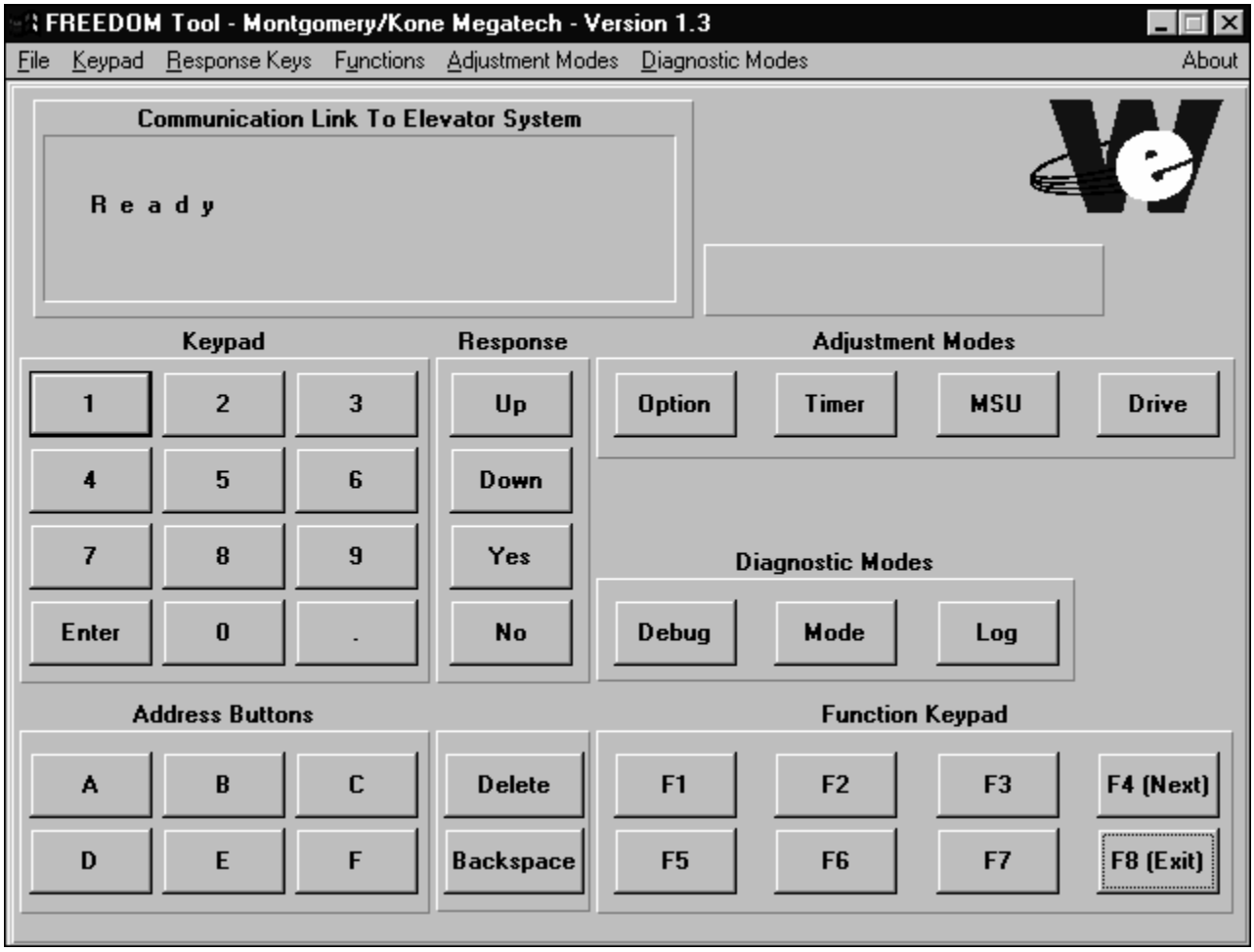

Figure 31

- Yes (Y):

  The Yes selection of the Response Keys button group sends a "Yes" response to the Montgomery MIPROM 21 (Megatech) elevator systems. The user commands the tool to

respond to the elevator system by selecting Yes from the Response Keys button group or simply by pressing the “Y” key upon the notebook computer’s keyboard.

- No (N):

  The No selection within the Response Keys button group sends a “No” response to the Montgomery MIPROM 21 (Megatech) elevator systems. The user commands the tool to respond to the elevator system by selecting No from the Response Keys button group or simply by pressing the “N” key upon the notebook computer’s keyboard.

- Up (↑):

  The Up selection within the Response Keys button group sends an “Up” response to the Montgomery MIPROM 21 (Megatech) elevator systems. The user commands the tool to respond to the elevator system by selecting Up from the Response Keys button group or simply by pressing the “↑” key upon the notebook computer’s keyboard.

- Down (↓):

  The Down selection within the Response Keys button group sends a “Down” response to the Montgomery MIPROM 21 (Megatech) elevator systems. The user commands the tool to respond to the elevator system by selecting Down from the Response Keys button group or simply by pressing the “↓” key upon the notebook computer’s keyboard.

Functions:

There is a set of command sequences the MIPROM 21 - Software Module use to select certain options, step through lists, and exit out of certain areas. Figure #32 shows the main control window of the MIPROM 21 - Software Module with the Functions buttons highlighted.

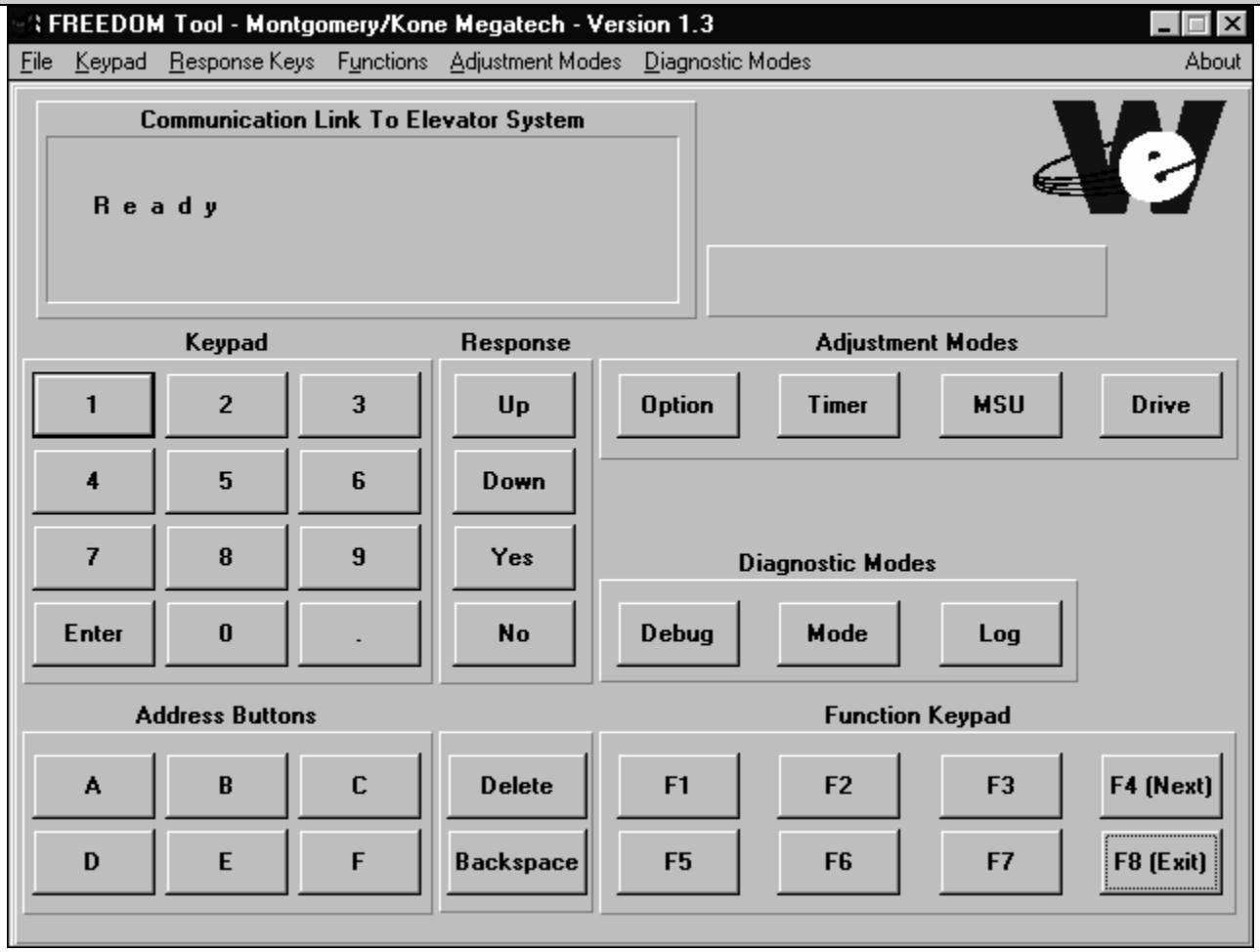

Figure 32

Some function selections within the MIPROM 21 - Software Module have multiple meanings. The available function selections within the MIPROM 21 - Software Module are described as follows:

- F1:

  The F1 selection within the Functions Keypad often is used within a main “menu” section of the various operating modes of the MIPROM 21 - Software Module. Whenever the user is within an adjustment or diagnostic selection, the F1 key is used to select the first choice within the Communication Link to Elevator System window. The F1 function is also used to set a variable up in adjustment mode, toggle a feature to an active (TRUE) state, or select a specific item within a sub-menu of the Communication Link to Elevator System window. The F1 function uses the keyboard key “F1” as its keyboard shortcut. Selecting F1 on the Functions Keypad or using its keyboard accelerator will send the F1 command to the elevator system.

- F2:

  The F2 selection within the Functions Keypad often is used within a main “menu” section of the various operating modes of the MIPROM 21 - Software Module. Whenever the user is within an adjustment or diagnostic selection, the F2 key is used to select the second choice within the Communication Link to Elevator System window. The F2 function is also used to toggle a feature to an inactive (FALSE) state or select a specific item within a sub-menu of the Communication Link to Elevator System window. The F2 function uses the keyboard key “F2” as its keyboard shortcut. Selecting F2 on the Functions keypad or using its keyboard accelerator will send the F2 command to the elevator system.

- F3:

  The F3 selection within the Functions Keypad often is used within a main “menu” section of the various operating modes of the MIPROM 21 - Software Module. Whenever the user is within an adjustment or diagnostic mode, the F3 key is used to select the third choice within the Communication Link to Elevator System window. The F3 function is also used to move backward through a sub menu of adjustments, or select a specific item within a sub-menu selection of the Communication Link to Elevator System window. The F3 function uses the keyboard key “F3” as its keyboard shortcut. Selecting F3 on the Functions Keypad or using its keyboard accelerator will send the F3 command to the elevator system.

- F4 (Next):

  A very important key within the MIPROM 21 - Software Module, the F4 (Next) selection within the Functions Keypad is used to scroll, forward, through a list of adjustment and diagnostic selections whenever the user is in an adjustment or diagnostic mode. The F4 (Next) function uses the keyboard key “F4” as its keyboard shortcut. Selecting F4 (Next) on the Functions Keypad or using its keyboard accelerator will send the F4 command to the elevator system.

- F5:

  In submenus of the adjustment and diagnostic modes of the MIPROM 21 - Software Module, the function F5 is used to select the first item on the list shown within the Communication Link to Elevator System window. The F5 function uses the keyboard key “F5” as its keyboard shortcut. Selecting F5 on the Functions Keypad or using its keyboard accelerator will send the F5 command to the elevator system.

- F6:

  In submenus of the adjustment and diagnostic modes of the MIPROM 21 - Software Module, the function F6 is used to select the second item on the list shown within the Communication Link to Elevator System window. The F6 function uses the keyboard key “F6” as its keyboard shortcut. Selecting F6 on the Functions Keypad or using its keyboard accelerator will sen7d the F6 command to the elevator system.

- F7:

  In submenus of the adjustment and diagnostic modes of the MIPROM 21 - Software Module, the function F7 is used to select the third item on the list shown within the Communication Link to Elevator System window. The F7 function uses the keyboard key “F7” as its keyboard shortcut. Selecting F7 on the Functions Keypad or using its keyboard accelerator will send the F7 command to the elevator system.

- F8 (Exit):

  A very important function within the MIPROM 21 - Software Module, the F8 (Exit) selection within the Functions Keypad is used to back out of a current view within the Communication Link to Elevator System window. As mentioned in the Logon procedure, the F8 (Exit) function is also used to proceed through the error messages to get to the “Ready” screen. The F8 (Exit) key is very important in logging off the elevator system. When logging off of the elevator system the F8 (Exit) function should be used until the Communication Link to Elevator System window updates to show “Ready to logoff?”. The F8 (Exit) function uses the keyboard key “F8” as its keyboard shortcut. Selecting F8 (Exit) on the Functions Keypad or using its keyboard accelerator will send the F8 command to the elevator system.

Adjustment Modes:

The FREEDOM Tool MIPROM 21 - Software Module has a mode of operation that allows the user to adjust various variables, modes of operation, and features of the MIPROM 21 (Megatech) elevator system. Within the Adjustment Modes keypad are four (4) individual adjustment modes. These adjustment modes can be seen in Figure #33.

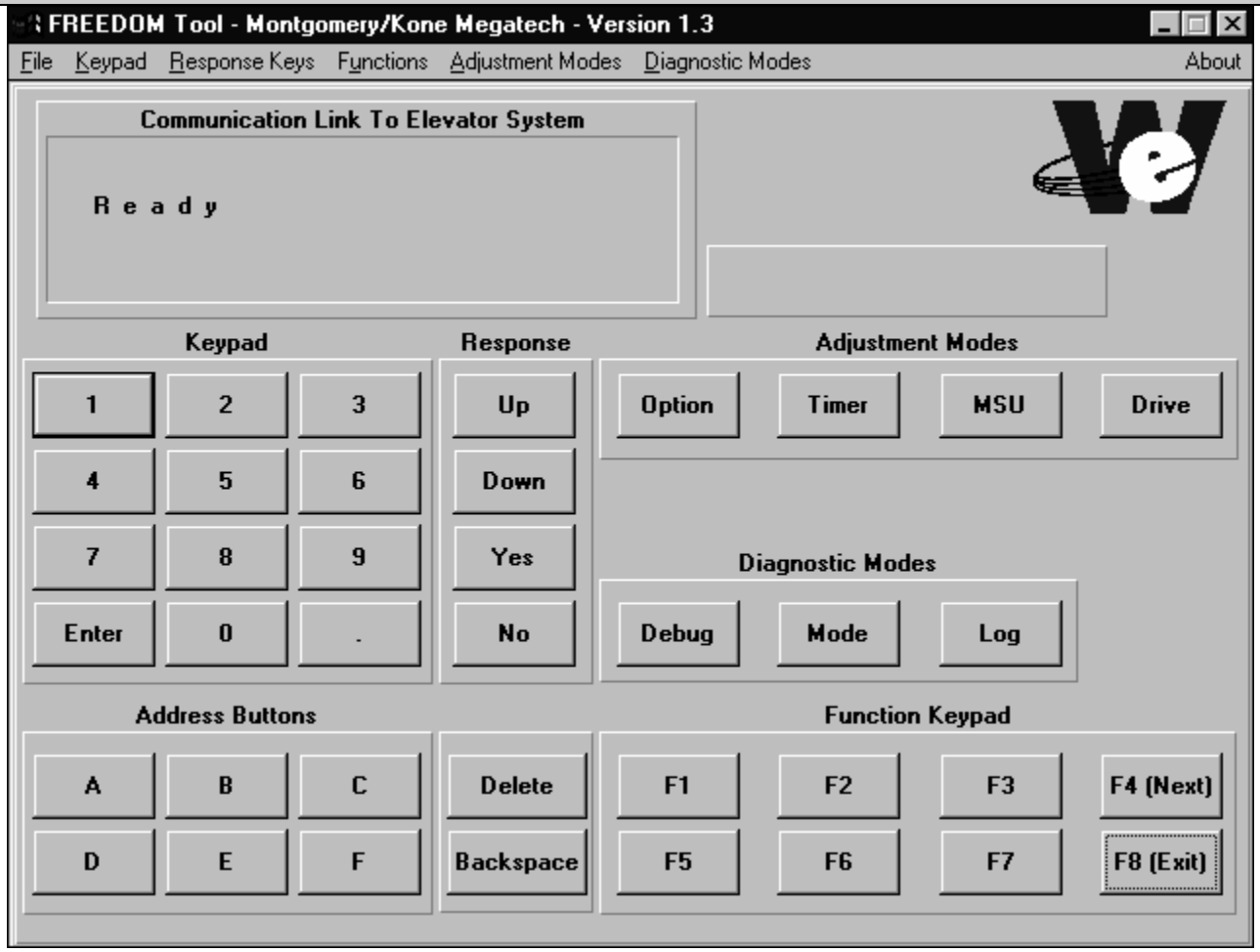

Figure 33

The four Adjustment Modes are Options, Timers, MSU, and Drive. It is important to notice that before entering any of the Adjustment Modes the Communication Link to Elevator System window should show the text “Ready”. If “Ready is not displayed within the Communication Link to Elevator System window, the tool will not act upon any of the Adjustment Mode selections. The F8 (Exit) function is used to back out of the current tool mode to the “Ready” screen. A brief description of each Adjustment Mode follows:

- Options (Ctrl + O):

  The Option Adjustment Mode of the MIPROM 21 - Software Module allows the user to adjust normal operations within the elevator system. All features found within the Option Adjustment Mode are described, in detail, within the Option section of the Adjustment Modes section of this manual. To access the Option Adjustment Mode of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the button selection “Option” on the Adjustment Modes Keypad and click once with the pointing

device button. The user may also use a keyboard accelerator consisting of the “Control” key along with the “O” key.

- Timer (Ctrl +T):

  The Timer Adjustment Mode of the MIPROM 21 - Software Module allows the user to adjust various timed operations within the elevator system. All features found within the Timer Adjustment Mode are described, in detail, within the Timer section of the Adjustment Modes section of this manual. To access the Timer Adjustment Mode of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the button selection “Timer” on the Adjustment Modes keypad and click once with the pointing device button. The user may also use a keyboard accelerator consisting of the “Control” key along with the “T” key.

- MSU (Ctrl + M):

  The MSU Adjustment Mode of the MIPROM 21 - Software Module allows the user to adjust any floor heights and motion of the elevator system. All features found within the MSU Adjustment Mode are described, in detail, within the MSU section of the Adjustment Modes section of this manual. To access the MSU Adjustment Mode of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the button selection “MSU” on the Adjustment Modes Keypad and click once with the pointing device button. The user may also use a keyboard accelerator consisting of the “Control” key along with the “M” key.

- Drive (Ctrl + D):

  The Drive adjustment mode of the MIPROM 21 - Software Module allows the user to adjust any variables dealing with the drive operation. It also gives the user the ability to setup and diagnose the Montgomery drive system. All features found within the Drive Adjustment Mode are described, in detail, within the Drive section of the Adjustment Modes section of this manual. To access the Drive Adjustment Mode of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the button selection “Drive” on the Adjustment Modes Keypad and click once with the pointing device button. The user may also use a keyboard accelerator consisting of the “Control” key along with the “D” key.

Diagnostic Modes:

The Diagnostic Modes allow the user to evaluate different systems within the elevator system. Among the things the elevator system allows the user to diagnose are I/O signals, error codes, and operational statuses. Figure #34 shows the main control window of the FREEDOM Tool MIPROM 21 - Software Module with the Diagnostic Modes keypad highlighted.

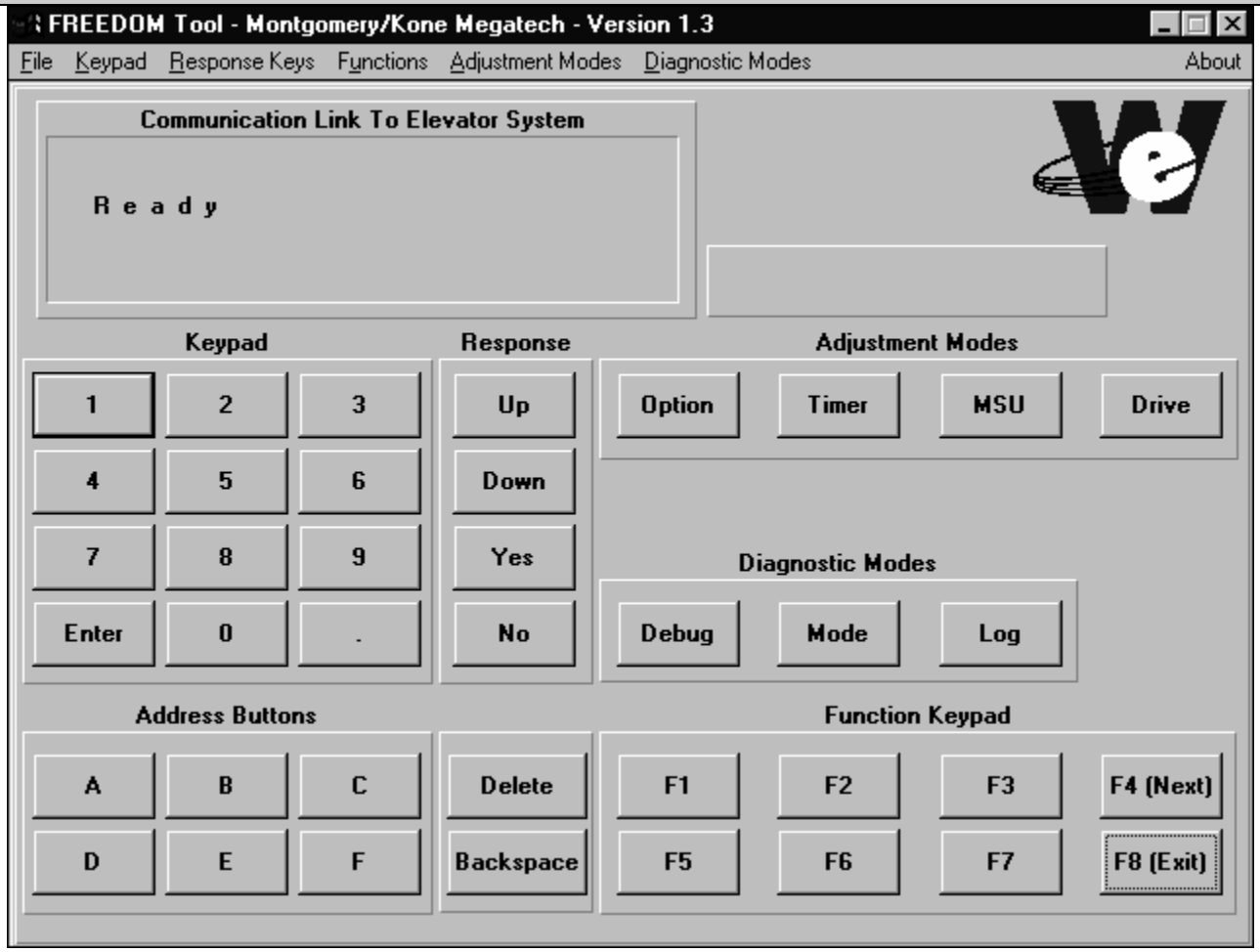

Figure 34

The three Diagnostic Modes are Debug, Mode, and Log. It is important to notice that before entering any of the Diagnostic Modes the Communication Link to Elevator System window should show the text “Ready”. If “Ready is not displayed within the Communication Link to Elevator System window, the tool will not act upon any of the Diagnostic Mode selections. The F8 (Exit) function is used to exit out of the current mode and return to the “Ready” screen. A brief description of each Diagnostic Mode follows:

- Debug (Shift + D):

  The Debug Diagnostic Mode of the MIPROM 21 - Software Module allows the user to view all inputs and outputs, check different systems within the elevator, and check the contents of memory within the elevator system. All items found within the Debug Diagnostic Mode are described, in detail, within the Debug section of the Diagnostic Modes section of this manual. To access the Debug Diagnostic Mode of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the menu item Diagnostic Modes and click once with the pointing device button. After the Diagnostic Modes menu has dropped

down, move the pointing device cursor over the Debug label and click once with the pointing device button. A keyboard combination of “Shift” and “D” can be used to enter the Debug mode.

- Mode(Shift + M):

  The Mode Diagnostic Routine of the MIPROM 21 - Software Module allows the user to perform tests upon the I/O of the elevator system. All items found within the Mode Diagnostic Routine are described, in detail, within the Mode section of the Diagnostic Modes section of this manual. To access the Mode Diagnostic Routine of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the menu item Diagnostic Modes and click once with the pointing device button. After the Diagnostic Modes menu has dropped down, move the pointing device cursor over the Mode label and click once with the pointing device button. A keyboard combination of “Shift” and “M” can be used to enter the Mode routine.

- Log (Shift + L):

  The Log Diagnostic Mode of the MIPROM 21 - Software Module allows the user to view all error logs and system resets within the elevator system. All items found within the Log Diagnostic Mode are described, in detail, within the Log section of the Diagnostic Modes section of this manual. To access the Log Diagnostic Mode of the MIPROM 21 - Software Module the user would maneuver the pointing device cursor over the menu item Diagnostic Modes and click once with the pointing device button. After the Diagnostic Modes menu has dropped down, move the pointing device cursor over the Log label and click once with the pointing device button. A keyboard combination of “Shift” and “L” can be used to enter the Log mode.

System Information:

The following section presents the user instructions for using the FREEDOM Tool MIPROM 21 - Software Module. All information is presented in a state that is as accurate as possible. There may be situations from one elevator to the next where discrepancies arise. Any questions on these discrepancies should be addressed to WORLD electronics. The FREEDOM Tool MIPROM 21 – Software Module has two modes of operation. These modes of operation are the Adjustment and Diagnostic modes. Refer to the designated section of the manual for more information.

Adjustment Mode:

The FREEDOM Tool MIPROM 21 - Software Module has a mode of operation that allows the user to adjust various variables, modes of operation, and features of the MIPROM 21 (Megatech) elevator system. Within the Adjustment Modes keypad are four (4) individual, adjustment modes. The four Adjustment Modes are Options, Timers, MSU, and Drive. It is important to notice that before entering any of the Adjustment Modes the Communication Link to Elevator System window should show the text “Ready”. If “Ready” is not displayed within the Communication Link to Elevator System window, the tool will not act upon any of the Adjustment Mode selections. The F8 (Exit) function is used to back out of the current tool mode to the “Ready” screen. A brief description of each Adjustment Mode follows:

Option (Ctrl + O):

The Option Adjustment Mode of the MIPROM 21-Software Module allows the user to adjust normal operations within the elevator system. This mode of the MIPROM 21-Software Module is selected by using an associated screen control, keyboard accelerator, or menu selection. When the Option Adjustment Mode is selected, the Communication Link to Elevator System window is updated to show three option adjustment functions as seen in Figure # 35.

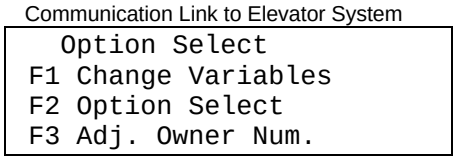

Figure 35

From the Options Adjustment Mode, the user is presented with several options. These option are described as follows:

F1 Change Variables:

The Change Variables function of the Options Mode of the Adjustment Mode is invoked by selecting the F1 function button. Once the F1 function button is selected, the Communication Link to Elevator System window is updated as shown in Figure #36. The Change Variables function is described in detail in the Change Variables section of this manual.

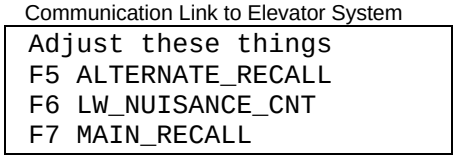

Figure 36

F2 Option Select:

Selecting the F2 function key, within the Options mode of the Adjustment mode of the MIPROM 21 Software module, displays a screen similar to the one seen in Figure #37. The Option Select function allows the user of the MIPROM 21 (Megatech) Software Module to enable and disable function found within the MIPROM 21-elevator system. For more detailed information on the operation of the Option Select function please review the section of this manual labeled Option Select.

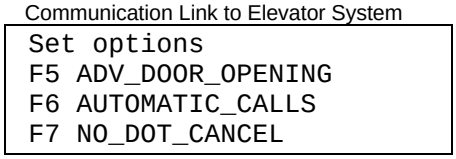

Figure 37

F3 Adj. Owner Num.:

Selecting F3 Adjust Owner Number updates the Communication Link to Elevator System window as in Figure #38. The Adj. Owner Num. function of the Option mode is special in its operation. A description of the Adjust Owner Number function is described in the section of this manual labeled Adjust Owner Number.

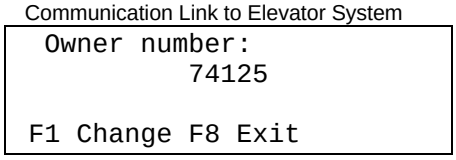

Figure 38

F4 (Next):

Pressing the F4 (Next) key in the Option Mode window causes the menu of available function to scroll to a window containing the next three items in order. In case there is not a multiple of three functions in the Options Mode, the window will scroll around to the first item on the list.

Example: A Montgomery MIPROM 21 elevator system dated October of 1990 has the available functions Change Variables, Option Select, Adjust Owner Number, Adjust PI Names, and Motion Options. When the user enters into the Option Mode the Communication Link to Elevator System window shows the user the first three available functions Change Variables, Option Select, and Adjust Owner Number. Refer to Figure #39. When the user selects the

F4 (Next) key the Communication Link to Elevator System window updates to show the next three available functions which are: Adjust PI Names, Motion Options, and Change Variables. Refer to Figure #40.

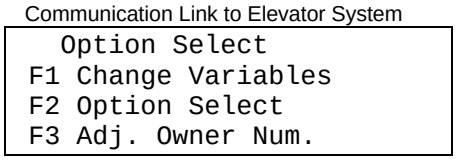

Figure 39

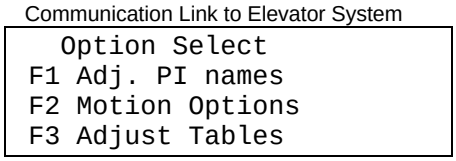

Figure 40

Notice that since there is not a multiple of three new adjustments the Communication Link to Elevator System window displays the remaining two function within the Option Mode and reassigns the Change Variables function to the value F7.

The remaining functions in the Option Mode are described in detail under their respective sections of this manual.

F8 (Exit):

The F8 (Exit) key will return the user to the main screen where “Ready” is displayed in the Communication Link to Elevator System window. When “Ready” appears the user may select any of the Adjustment or Diagnostic modes.

The Option Mode contains several functions used to change the operation of the elevator system. These functions are described in detail in the following sections.

- Change Variables:

  The Change Variables function of the Option Adjustment Mode enable the user to change value of specific adjustments within the MIPROM 21 - elevator control system. When the user selects the Change Variables function, the Communication Link to Elevator System window updates as seen in Figure # 41. This window is called the Adjustment Selection window.

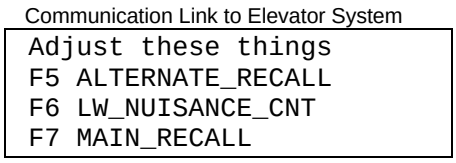

Figure 41

When the user selects the Change Variables function, they have several options available to them. These options are the functions F5, F6, F7, F4 (Next), F3, and F8 (Exit). These functions are described as follows:

- F5:

  The F5 function selects the first adjustment listed within the Adjustment Selection window in the Communication Link to Elevator System. When an adjustment is selected from the Change Variables window the Communication Link to Elevator System window will update to show the selected adjustment as in Figure # 42.

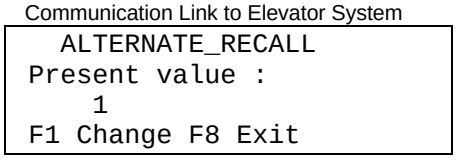

Figure 42

Figure #42 shows a selected adjustment in the Change Variables function. This window displays the current adjustment selected and its current value. This window gives the user four options. These are described as follows:

F1:

The Change Variable window as seen in Figure #42 defines the F1 button as a change function. If the user desires to change the current adjustment's value, the user would select the F1 function. The F1 function, when selected, updates the Communication Link to Elevator System window as seen in Figure #43. Figure #43 shows the change mode for the current adjustment "ALTERNATE_RECALL".

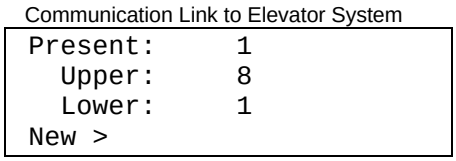

Figure 43

It shows the user the upper and lower limit and the current value for the adjustment. The Change window requests the user to type in a new value for the selected adjustment. At this point, the user would use the Keypad buttons to enter a new value for the adjustment. When the correct value is selected, the user should press the "Enter" button to transmit the new value to the elevator system. If the user typed in an incorrect value, the Communication Link to Elevator System will update as in Figure #44.

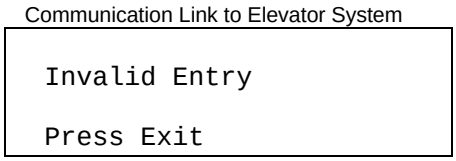

Figure 44

To leave the adjustment value unchanged, enter the current value for the adjustment and press “Enter”. When the elevator system accepts the entered value, the Communication Link to Elevator System window will update to the adjustment description window as seen in Figure #42.

F3:

The F3 function scrolls the adjustment description window to the previous adjustment on the elevator’s Change Variables adjustment list.

F4 (Next):

The F4 (Next) function scrolls the adjustment description window to the next adjustment on the elevator’s Change Variables adjustment list.

F8 (Exit):

The F8 (Exit) function will return the Communication Link to Elevator System window back to the Adjustment selection window.

- F6:

  The F6 function selects the second adjustment listed within the Adjustment Selection window in the Communication Link to Elevator System.

- F7:

  The F7 function selects the third adjustment listed within the Adjustment Selection window in the Communication Link to Elevator System.

- F4 (Next):

  The F4 (Next) key will cause the Adjustment Selection window to update showing the next three adjustments available within the Change Variables function of the Option Adjustment Mode. A list of possible adjustments can be found in Table #1.

- F3:

  The F3 key will cause the Adjustment Selection window to update showing the previous three adjustments available within the Change Variables function of the Option Adjustment Mode. A list of possible adjustments can be found in Table #1.

- F8 (Exit):

  The F8 (Exit) function will cause the MIPROM 21 – Software Module to exit the Change Variable function and update the Communication Link to Elevator System window allowing the user to select one of the Option Adjustment Mode functions.

Table 1 Change Variables – Variable List

Adjustment Name	Adjustment Description
ALTERNATE_RECALL	Fire service phase 1 alternate return landing
LW_NUISANCE_CNT	Car calls entered until loadweigher cancels
LW_NUISANCE	Loadweigher % until nuisance cal cancel
LOBBY	Main landing
MAIN_RECALL	Fire service phase 1 main return landing
PARKING_FLOOR	Floor at which car parks
PC_NUISANCE_CNT	Stops car will make without the photocell being tripped
UP_PEAK_CNT	
DOWN_PEAK_CNT	
MAX_DOOR_TIME	
MIN_DOOR_TIME	
MAX_RUN_TIME	
MIN_RUN_TIME	
SCAN_RATE	
WATCHDOG_LIMIT	
HOMING_FLOOR	Landing where car homes
CANCEL_DELAY	
NUDGING_STATUS	
LOBBY_STOP	
LW_BYPASS	Loadweigher % until calls are bypassed
EP_RECALL	

Table 1 Change Variables – Variable List (continued)

Adjustment Name	Adjustment Description
PHOTOCELL_LWB	
PH2_2_POSITION	
PH1_FS_DOOR_OPEN	Door that opens when on phase 1 fire service return
FRT_AUX_DOOR	
CAR_NUMBER	Number assigned to car within group

Table 1

- Option Select:

  The Option Select function of the Option Adjustment Mode allows the user to enable and disable features of the elevator system. When Option Select is chosen, the Communication Link to Elevator System updates as seen in Figure #45

Communication Link to Elevator System

```
Set options
F5 ADV_DOOR_OPENING
F6 AUTOMATIC_CALLS
F7 NO_DOT_CANCEL
```

Figure 45

The “Set options” window as seen in Figure #45 displays a list of available options in the MIPROM 21 - elevator system. The Set option window gives the user several options. These options are described as follows:

- F5:

  The F5 function selects the first option listed within the “Set options” window in the Communication Link to Elevator System. When an option is selected from the “Set options” window the Communication Link to Elevator System window will update to show the selected adjustment as in Figure # 46.

Communication Link to Elevator System

```
  ADV_DOOR_OPENING
Value now:  FALSE
Set to:  F1 true
F8 exit  F2 false
```

Figure 46

Figure #46 shows a selected option in the Option Select function. This window displays the current option selected and its current value. This window gives the user five options. These are described as follows:

F1:

The Option Adjust window as seen in Figure #46 defines the F1 button as a “true” value. If the user desires to change the current option’s value to true, the user would select the F1 function. The F1 function, when selected, updates the value for the current option to true.

F2:

The Option Adjust window as seen in Figure #46 defines the F2 button as a “false” value. If the user desires to change the current option’s value to false, the user would select the F2 function. The F2 function, when selected, updates the value for the current option to false.

F3:

The F3 key will cause the Option Adjust window to update showing the previous option available within the Option Select function of the Option Adjustment Mode.

F4 (Next):

The F4 (Next) key will cause the Option Adjust window to update showing the next option available within the Option Select function of the Option Adjustment Mode.

F8 (Exit):

The F8 (Exit) function will return the Communication Link to Elevator System window back to the “Set options” window.

- F6:

  The F6 function selects the second option listed within the “Set options” window in the Communication Link to Elevator System.

- F7:

  The F7 function selects the third option listed within the “Set options” window in the Communication Link to Elevator System.

- F4 (Next):

  The F4 (Next) key will cause the “Set options” window to update showing the next three options available within the Option Select function of the Option Adjustment Mode. A list of possible options can be found in Table #2.

- F3:

  The F3 key will cause the “Set options” window to update showing the previous three options available within the Option Select function of the Option Adjustment Mode. A list of possible options can be found in Table #2.

- F8 (Exit):

  The F8 (Exit) function will cause the MIPROM 21 – Software Module to exit the Option Select function and update the Communication Link to Elevator System window allowing the user to select one of the Option Adjustment Mode functions.

Table 2 Option Select – Option List

Option Name	Option Description
ADV_DOOR_OPENING	Door preopening
ANSI-84_CODE	3 position fire switch
AUTOMATIC_CALLS	Car sets up its own calls
NO_DOT_CANCEL	Cancellation feature for short door time
LANT_MAINTAIN	
DD_HALL_LANTERNS	2 stroke gong
IDR	On inspection car doors will close automatically
IMM_STP_CUTOUT	Fire recall stop switch override
PH1_DOX_CANCEL	Phase 1 fire service recall door open push button override
PH1_SEC_CANCEL	Phase 1 fire service recall safety edge override
PH2_CP_HOLD	Chicago fire service phase 2 door open button
PH2_SEC_CANCEL	Phase 2 fire service recall safety edge override
REVERSE_CANCEL	Terminal floor cancel
INHIBIT_DOORS	Disables car doors
TEST_WATCHDOG	Test to see if PIO will reset CPU
EP_PARK_OPEN	Emergency Power – car will park with door open
CSV_OVERRIDE	Car does not respond to hall calls
DD_CAR_LANTERNS	2 stroke car lantern
UNDER_DEVELOPMEN	
BEAT_HALL_TIME	Door close button overrides hall call door open time

Table 2 Option Select – Option List (continued)

Option Name	Option Description
ADVANCE_CANCEL	
VA_SENSOR_RESET	
TOP_FILL_HOMING	
KICK_NU	
LOBBY_PREFERENCE	
NU_DOOR_OPEN	
COIN_CALLS	
NO_DOOR_REOPEN_O	
BYPASS_EXPRESS	
CSVO	Car ignores CSV inputs
MOMENTARY_IND	
HR_PARK_OPEN	Parking operation
VA_SEN_RESET	Placing hall fire service switch in Bypass position will not reset sensors
IMM_PH2_FS	Phase 2 fire service enabled when car switch is turned on
PC_OBSTRUCTION	Photocell obstruction operation
HOMING_ACTIVE	Enables homing operation
HOME_PARK_OPEN	Car parks at homing floor with doors open
FS_DOX_OPTION	
DOX_OBSTRUCTION	
DOORMAN_FIX	
PHS_SEC_STALL	
PH2_DO4_CLOSE	
PCX_DO4_CLOSE	
PH2_STP_OVERRIDE	

Table 2 Option Select – Option List (continued)

Option Name	Option Description
SECURE_ON_IND	Call lockouts will not be overridden by independent service
CX_OVERRIDE	

Table 2

- Adjust Owner Number:

  The Adjust Owner Number function of the Option Adjustment Mode allows the user to change the serial number given to the MIPROM 21 (Megatech) elevator system at the factory. Changing this number does not prevent the FREEDOM Tool MIPROM 21 (Megatech) software module from communicating with the elevator system. If this number is changed, a Montgomery Service Tool programmed to work on the MIPROM 21 - elevator controller will not communicate with the elevator controller. When Adjust Owner Number is selected, the Communication Link to Elevator System updates as seen in Figure #47

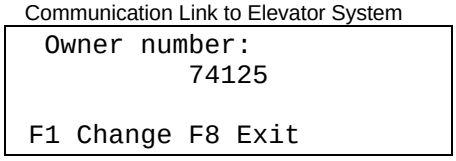

Figure 47

The “Owner number” window as seen in Figure #47 displays the current owner number for the connected elevator system. The “Owner number” window gives the user two options. These options are described as follows:

- F1:

  The F1 function places the MIPROM 21 - software module into a mode that allows the current owner number to be changed. When an F1 is selected from the “Owner number” window the Communication Link to Elevator System window will update requesting the user to enter an owner number as in Figure # 48.

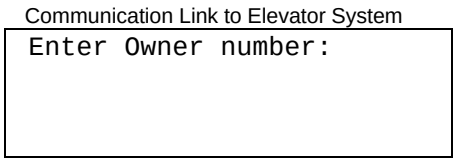

Figure 48

Figure #48 shows Adjust Owner Number function requesting the user to enter an owner number. The user may type in a new owner number followed by the “Enter” key, or they may exit the Change operation for the Adjust Owner Number function by selecting the F8 (Exit) function button.

- F8 (Exit):

  The F8 (Exit) function will cause the MIPROM 21 – Software Module to exit the Adjust Owner Number function and update the Communication Link to Elevator System window allowing the user to select one of the Option Adjustment Mode functions.

- Adjust PI Names:

The Adjust PI Names function of the Option Adjustment Mode allows the user to view and change programmable PI settings through the service tool. Figure #49 shows the Communication Link to Elevator System window as it should appear when the Adjust PI Names function is selected from the Option Adjustment Mode.

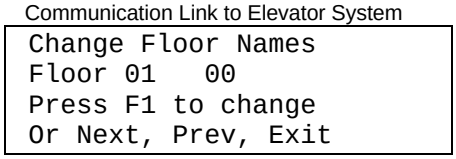

Figure 49

The "Change Floor Names" window as seen in Figure #49 displays the current floor with its set value. The "Change Floor Names" window gives the user several options. These options are described as follows:

- F1:

  The F1 function enables the change mode for the Adjust PI Names function. When the F1 function button is selected, the Communication Link to Elevator System window will update similar to the window shown in Figure #50.

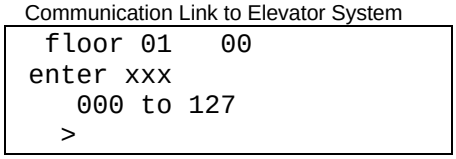

Figure 50

Figure #50 requests the user to enter a new value for the PI display for the selected landing. The user would type in the 3 digit code for the characters to be displayed at the selected floor. After the 3 digit code is entered the user should select the "Enter" button to transmit the updated value to the elevator system.

- F4 (Next):

  The F4 (Next) key will cause the "Change Floor Names" window to update showing the next floor and its setting for the PI.

- F3:

  The F3 key will cause the “Change Floor Names” window to update showing the previous floor and the numerical code for its PI display.

- F8 (Exit):

  The F8 (Exit) function will cause the MIPROM 21 – Software Module to exit the Adjust PI Names function and update the Communication Link to Elevator System window allowing the user to select one of the Option Adjustment Mode functions.

- Adjust Tables:

The Adjust Tables function of the Option Adjustment Mode enable the user to adjust various function tables within the MIPROM 21 - elevator control system. When the user selects the Adjust Tables function, the Communication Link to Elevator System window updates as seen in Figure # 51.

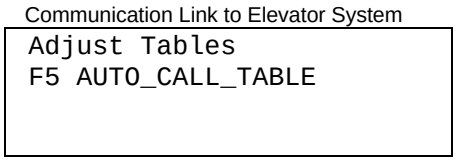

Figure 51

When the user selects the Adjust Tables function, they have several options available to them. These options are the functions F5, F6, F7, F4 (Next), F3, and F8 (Exit). These functions are described as follows:

- F5:

  The F5 function selects the first table listed within the “Adjust Tables” window in the Communication Link to Elevator System. When a table is selected from the “Adjust Tables” window the Communication Link to Elevator System window will update to show the selected adjustment as in Figure # 52.

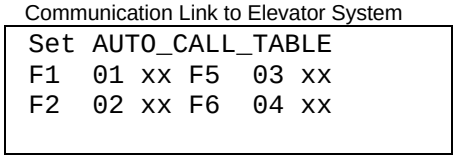

Figure 52

Figure #52 shows a selected table in the Adjust Tables function. This window displays the selected table and its current settings. This window gives the user seven options. These are described as follows:

F1:

The “Set AUTO_CALL_TABLE” window as seen in Figure #52 assigns the F1 function button to the call table for landing 01. To set the AUTO_CALL_TABLE to set a specific call for landing 01 the user would press the F1 function key. Pressing the F1 function

key will update the Communication Link to Elevator System window to appear similar to the one seen in Figure #53.

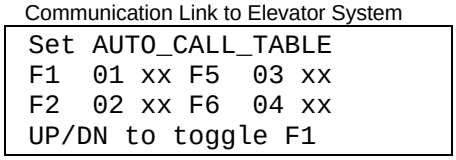

Figure 53

When F1 is selected the user can then toggle an up or down call by selecting the Up and Down response in the tool. When an Up or Down response is given to the "Set AUTO_CALL_TABLE" window the small "x"'s beside the selected floor will update with a "U", a "D", or toggle back to an "x".

F2:

The "Set AUTO_CALL_TABLE" window as seen in Figure #52 assigns the F2 function button to the call table for landing 02. To set the AUTO_CALL_TABLE to set a specific call for landing 02 the user would press the F2 function key. Pressing the F2 function key will update the Communication Link to Elevator System window to appear similar to the one seen in Figure #54.

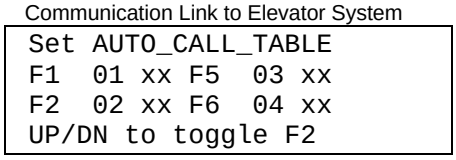

Figure 54

When F2 is selected the user can then toggle an up or down call by selecting the Up and Down response in the tool. When an Up or Down response is given to the "Set AUTO_CALL_TABLE" window the small "x"'s beside the selected floor will update with a "U", a "D", or toggle back to an "x".

F5:

The "Set AUTO_CALL_TABLE" window as seen in Figure #52 assigns the F5 function button to the call table for landing 05. To set the AUTO_CALL_TABLE to set a specific call for landing 05 the user would press the F5 function key. Pressing the F5 function key will update the Communication Link to Elevator System window to appear similar to the one seen in Figure #55.

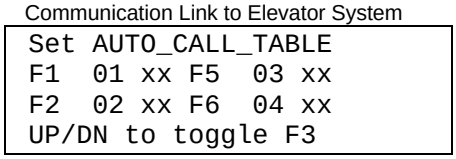

Figure 55

When F5 is selected the user can then toggle an up or down call by selecting the Up and Down response in the tool. When an Up or Down response is given to the "Set AUTO_CALL_TABLE" window the small "x"'s beside the selected floor will update with a "U", a "D", or toggle back to an "x".

F6:

The "Set AUTO_CALL_TABLE" window as seen in Figure #52 assigns the F6 function button to the call table for landing 06. To set the AUTO_CALL_TABLE to set a specific call for landing 06 the user would press the F6 function key. Pressing the F6 function key will update the Communication Link to Elevator System window to appear similar to the one seen in Figure #56.

Communication Link to Elevator System

```
Set AUTO_CALL_TABLE
F1  01 xx F5  03 xx
F2  02 xx F6  04 xx
UP/DN to toggle F4
```

Figure 56

When F6 is selected the user can then toggle an up or down call by selecting the Up and Down response in the tool. When an Up or Down response is given to the "Set AUTO_CALL_TABLE" window the small "x"'s beside the selected floor will update with a "U", a "D", or toggle back to an "x".

F3:

Selecting F3 in the "Set AUTO_CALL_TABLE" causes the Communication Link to Elevator System window to scroll to the previous group of up to four landings.

F4 (Next):

Selecting F4 (Next) in the "Set AUTO_CALL_TABLE" causes the Communication Link to Elevator System window to scroll to the next group of up to four landings.

F8 (Exit):

The F8 (Exit) function will return the Communication Link to Elevator System window back to the "Adjust Tables" window.

- F6:

The F6 function selects the second Table listed within the "Adjust Tables" window in the Communication Link to Elevator System.

- F7:

  The F7 function selects the third Table listed within the “Adjust Tables” window in the Communication Link to Elevator System.

- F4 (Next):

  The F4 (Next) key will cause the “Adjust Tables” window to update showing the next three tables available within the Adjust Tables function of the Option Adjustment Mode.

- F3:

  The F3 key will cause the “Adjust Tables” window to update showing the previous three tables available within the Adjust Tables function of the Option Adjustment Mode.

- F8 (Exit):

  The F8 (Exit) function will cause the MIPROM 21 – Software Module to exit the Adjust Tables function and update the Communication Link to Elevator System window allowing the user to select one of the Option Adjustment Mode functions.

Motion Options

The Motion Options function of the Option Adjustment Mode enable the user to adjust various motion related functions within the MIPROM 21 - elevator control system. When the user selects the Motion Options function, the Communication Link to Elevator System window updates as seen in Figure # 57.

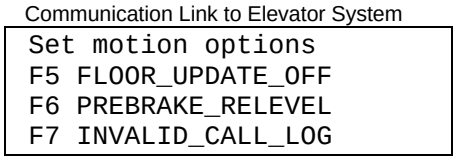

Figure 57

The “Set motion options” window as seen in Figure #57 displays a list of available motion options in the MIPROM 21 - elevator system. The “Set motion options” window gives the user several options. These options are described as follows:

- F5:

  The F5 function selects the first motion option listed within the “Set motion options” window in the Communication Link to Elevator System. When a motion option is selected from the “Set motion options” window the Communication Link to Elevator System window will update to show the selected adjustment as in Figure # 58.

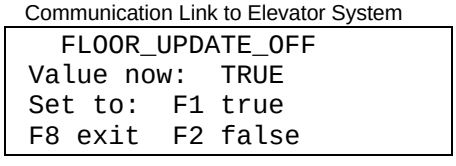

Figure 58

Figure #58 shows a selected motion option in the Motion Options function. This window displays the current motion option selected and its current value. This window gives the user five options. These are described as follows:

F1:

The Motion Option Adjust window as seen in Figure #58 defines the F1 button as a "true" value. If the user desires to change the current motion option's value to true, the user would select the F1 function. The F1 function, when selected, updates the value for the current motion option to true.

F2:

The Motion Option Adjust window as seen in Figure #58 defines the F2 button as a "false" value. If the user desires to change the current motion option's value to false, the user would select the F2 function. The F2 function, when selected, updates the value for the current motion option to false.

F3:

The F3 key will cause the Motion Option Adjust window to update showing the previous motion option available within the Motion Option function of the Option Adjustment Mode.

F4 (Next):

The F4 (Next) key will cause the Motion Option Adjust window to update showing the next motion option available within the Motion Option function of the Option Adjustment Mode.

F8 (Exit):

The F8 (Exit) function will return the Communication Link to Elevator System window back to the "Set motion options" window.

- F6:

  The F6 function selects the second motion option listed within the "Set motion options" window in the Communication Link to Elevator System.

- F7:

  The F7 function selects the third motion option listed within the "Set motion options" window in the Communication Link to Elevator System.

- F4 (Next):

  The F4 (Next) key will cause the "Set motion options" window to update showing the next three motion options available within the Motion Option function of the Option Adjustment Mode. A list of possible motion options can be found in Table #3.

- F3:

  The F3 key will cause the “Set motion options” window to update showing the previous three motion options available within the Motion Option function of the Option Adjustment Mode. A list of possible options can be found in Table #3.

- F8 (Exit):

  The F8 (Exit) function will cause the MIPROM 21 – Software Module to exit the Motion Option function and update the Communication Link to Elevator System window allowing the user to select one of the Option Adjustment Mode functions.

Table 3 Motion Options

Option Name	Option Description
FLOOR_UPDATE_OFF	Enables automatic update of floor levels at midnight
PREBRAKE_RELEVEL	Enables car to relevel before setting the brake
INVALID_CALL_LOG	Logs any calls from dispatch that are false
PL_LOAD_OVERRIDE	AC jerk
SPECIAL_VANES	Enables use of 10 holed vanes
EDGE_CORRECTION	Corrects error involving blind hoistways
DRV_DLY_ERR_CHK	
FACTORY_TEST	
SOFTSTART_OVERRI	

Table 3

Timer (Ctrl + T):

The Timer Adjustment Mode of the MIPROM 21-Software Module allows the user to adjust various timer adjustments and clocks within the elevator system. This mode of the MIPROM 21-Software Module is selected by using an associated screen control, keyboard accelerator, or menu selection. When the Timer Adjustment Mode is selected, the Communication Link to Elevator System window is updated to show three option adjustment functions as seen in Figure # 59.

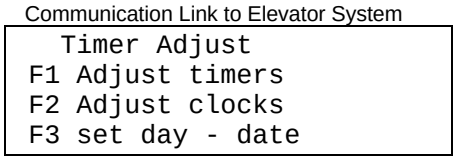

Figure 59

From the Timer Adjustment Mode, the user is presented with several options. These option are described as follows:

F1 Adjust timers:

The Adjust timers function of the Timer Adjustment Mode is invoked by selecting the F1 function button. Once the F1 function button is selected, the Communication Link to Elevator System window is updated as shown in Figure #60. The Adjust timers function is described in detail in the Adjust timers section of this manual.

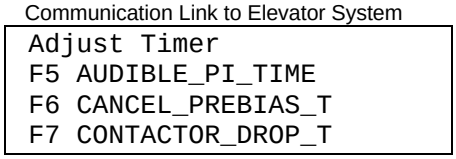

Figure 60

F2 Adjust clocks:

F3 Set day - date:

Selecting F3 Set day - date updates the Communication Link to Elevator System window as in Figure #61. The Set day - date function of the Timer mode is special in its operation. A description of the Set day - date function is described in the section of this manual labeled Set day - date.

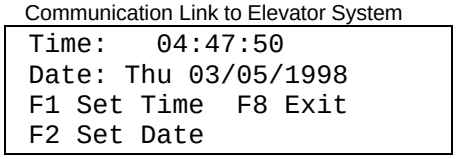

Figure 61

F8 (Exit):

The F8 (Exit) key will return the user to the main screen where "Ready" is displayed in the Communication Link to Elevator System window. When "Ready" appears the user may select any of the Adjustment or Diagnostic modes.

The Timer Mode contains several functions used to change the operation of the elevator system. These functions are described in detail in the following sections.

- Adjust timers:

  The Adjust timers function of the Timer Adjustment Mode provides the user with an interface to view and adjust several timer oriented functions within the MIPROM 21 – elevator system. The Communication Link to Elevator System window appears as in Figure #62 when the "Adjust timers" function is selected.

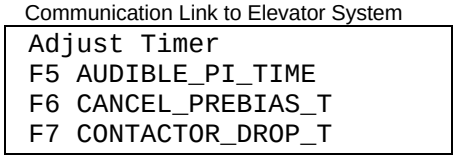

Figure 62

  When the user selects the Adjust timers function, they have several options available to them. These options are the functions F5, F6, F7, F4 (Next), F3, and F8 (Exit). These functions are described as follows:

  - F5:

    The F5 key is used to select the first timer adjustment listed within the "Adjust Timer" in the Communication Link to Elevator System. When a Timer adjustment is selected from the "Adjust Timer" window the Communication Link to Elevator System window will update to show the selected timer as in Figure # 63.

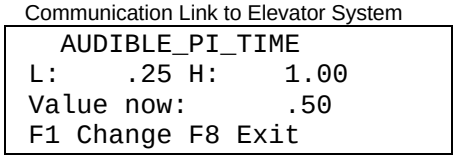

Figure 63

Figure #63 represents a selected timer adjustment in the Adjust timers function. This window displays the selected timer adjustment and its current value. This window gives the user four options. These are described as follows:

F1:

The Timer Value window as seen in Figure #63 defines the F1 button as a change function. If the user desires to change the selected timer value, the user would select the F1 function. The F1 function updates the Communication Link to Elevator System window as seen in Figure #64. Figure #64 shows the change mode for the current adjustment "AUDIBLE_PI_TIME".

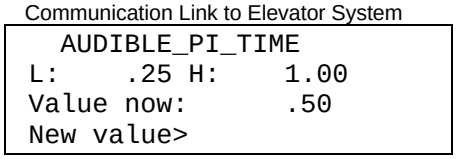

Figure 64

The window handling the change function for the timer adjustments displays to the user the upper and lower limits along with the current value for the adjustment. After the user selects the F1 Change function the bottom line of the Communication Link to Elevator System updates to show "New value>". This is a prompt to the user to enter in a new value for the selected timer adjustment. Using the keypad keys the user would type in the desired value for the selected timer adjustment. If the value entered is within the limits set by the elevator system, the Communication Link to Elevator System will update showing the new current value for the selected timer. Otherwise, an incorrect timer entry will cause the Communication Link to Elevator System window to update informing the user to an invalid entry as in Figure #65. To re-enter a tolerable value, the user would select the F8 (Exit) function and then type in a correct value.

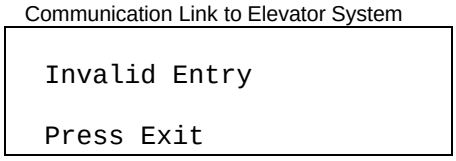

Figure 65

To leave the timer value unchanged, select the F8 (Exit) function key.

F3:

To cause the Timer Value window to update showing the previous timer adjustment within the Adjust timers menu, select the function key F3.

F4 (Next):

The F4 (Next) function advances the Timer Value window to show the next timer adjustment within the elevator's Adjust timers list.

F8 (Exit):

The F8 (Exit) function will return the Communication Link to Elevator System window back to the "Adjust Timer" window.

- F6:

  The F6 function selects the second timer adjustment listed within the "Adjust Timer" window.

- F7:

  Selecting F7 will select the third timer adjustment displayed within the "Adjust Timer" window.

- F4 (Next):

  In order to see the next grouping of Timer Adjustments, the user can select the F4(Next) function. Timer Adjustments are listed in groups of three adjustments. Every time the F4 (Next) function button is selected, a new list of three timer adjustments is presented in the Communication Link to Elevator System window. If the list does not contain a multiple of three timer adjustments the MIPROM 21 software module will fill the remaining adjustment slots with the necessary number of timer adjustments from the beginning of the list. A list of possible adjustments can be found in Table #4.

- F3:

  The F3 key will cause the Timer Adjustments window to update showing the previous three adjustments available within the Adjust Timers function of the Timer Adjustment Mode. A list of possible adjustments can be found in Table #4.

- F8 (Exit):

  The F8 (Exit) function will cause the MIPROM 21 – Software Module to exit the Adjust Timers function and update the Communication Link to Elevator System window allowing the user to select one of the Timer Adjustment Mode functions.

Table 4 Adjust Timers – Timer Adjustment List

Timer Name	Timer Description
AUDIBLE_PI_TIME	Passing floor buzzer time
CANCEL_PREBIAS_T	Time from balance complete to door lock
CONTACTOR_DROP_T	Drive pickup timer

Table 4 Adjust Timers – Timer Adjustment List (continued)

Timer Name	Timer Description
EP_TIME	
FRONT_DR_TIME	
FRONT_LC_TIME	Car call door open time
FRONT_LH_TIME	Hall call door open time
FRONT_OB_TIME	Front door nudging
FRONT_SC_TIME	Car call short door time
FRONT_SH_TIME	Hall call short door time
FS_FLASHER_TIME	Flashing rate of hall fire light
IND_FS_DLY_TIME	Time car remains on independent service until it responds to fire service
MAX_RUN_START_TI	Time allowed to receive balance complete signal
MINIMUM_STOP_TIM	Time form a car stop until a car run
PH2_DELAY_TIME	Phase 2 switch position switch read delay
SEN_DELAY_TIME	Phase 1 input delay
SS_TIME	Time from emergency power to start
FRT_DD_CAR_TIME	Rate on cab lantern gong
DRIVE_FAULT_TIME	
FRT_DD_HALL_TIME	Hall gong stroke rate
PS_TIME	
BRAKE_ECON_TIMER	Time until brake voltage dropped
MOTOR_BLOWER_TIM	Time motor fan remains on
HOMING_TIME	Time until car goes on homing operation
BRAKE_TIMER	
COMMON_TOGG_TIME	

Table 4 Adjust Timers – Timer Adjustment List (continued)

Timer Name	Timer Description
OS_TIME	
SENSOR_DELAY_TIM	
SPECIAL_TIMER	
POWER_ON_DELAY_T	
SERVICE_TOGGLE_T	
UP_PEAK_TIME	
DOWN_PEAK_TIME	
NU_PARK_OPEN_TIME	
MIN_LOBBY_TIME	Door open time at lobby
EP_OS_TIME	
SECURITY_TIME	Time until entered security code is reset
REAR_DD_CAR_TIME	Rate on cab lantern gong
REAR_DR_TIME	
REAR_LC_TIME	Car call door open time
REAR_LH_TIME	Hall call door open time
REAR_OB_TIME	Rear door nudging
REAR_SC_TIME	Car call short door time
REAR_SH_TIME	Hall call short door time
REAR_DD_HALL_TIME	Rear hall gong rate

Table 4

- Set day - date:

  The MIPROM 21- elevator control system has a user programmable clock. This programmable clock is used as timer for many for the timer functions. In addition, the real-time clock is used as part of the error recording system within the MIPROM 21 – elevator

control system. Selecting the "Set day-date" function updates the Communication Link to Elevator System window similar to the one shown in Figure #66.

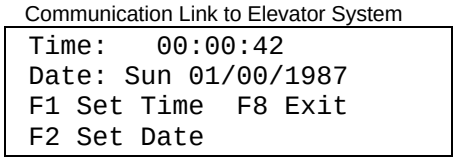

Figure 66

The "Set day – date" function of the Timer Adjustment Mode display to the user the current time in 24 hr. military format. Along with displaying the time, the "Set day – date" function displays the day of the week, month, year, and day. Among the options available to the user in the "Set day – date" function, are the function selection buttons F1, F2, and F8. These function buttons and the functions corresponding to them are defined as follows:

- F1:

  In the "Set day – date" function the function key F1 is assigned the function "Set Time". Selecting the F1 function key will place the MIPROM 21 software module in a mode where the user must enter the time. Figure #67 displays the Communication Link to Elevator System window as it would appear when the "Set Time" function key is selected.

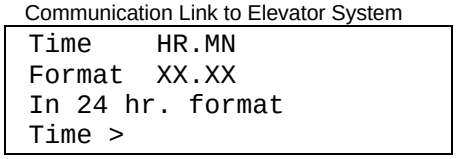

Figure 67

When the user selects the "Set Time" function the user is prompted to enter in the desired time using the 24 hr. time format. The time must follow a specific pattern when entered by the user. This pattern requires a 2-digit hour followed by a 2-digit minute, separated by the decimal character. This time can be entered using the keypad keys. When the desired time is selected using the keypad keys, the "Enter" button should be used to transmit that time to the elevator system. If the entered time does not fit the required parameters or patterns the Communication Link to Elevator System window will update as in Figure #68 showing an Invalid Entry.

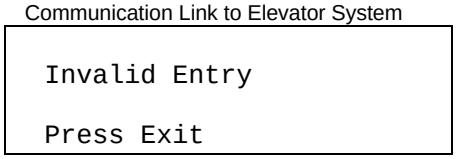

Figure 68

To leave the elevator controller time unchanged, select the F8 (Exit) function key.

- F2:

  The “Set Date” function is associated with the function key F2. Selecting the F2 key will place MIPROM 21 software module into the “Set Date” mode allowing the user to enter in the desired date for the elevator system. When the F2 function key is selected, the Communication Link to Elevator System window will update into a mode similar to the one seen in Figure #69.

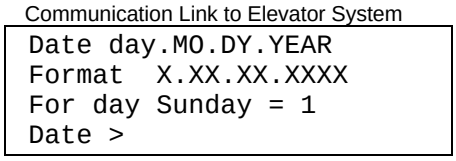

Figure 69

The date format the MIPROM 21 elevator control system uses requires the user to enter a value for the day of the week followed by a 2digit month code, a 2 digit day code, and a 4 digit year. Table #5 shows the code definitions for the days of the week. When setting the date the user would use the keypad keys to first type in the date with the different parts of the date being separated by a “.” character. When the desired date is selected, the user can send it to the elevator system by selecting the “Enter” key upon the keypad. If the date format is incorrect, the Communication Link to Elevator System window will display “Invalid Entry Press Exit”. If the user desires not to change the date, the user may select the F8 (Exit) function key.

Table 5 Set Date Codes for the Day of the Week

Day of the Week	Code Number
SUNDAY	1
MONDAY	2
TUESDAY	3
WEDNESDAY	4
THURSDAY	5
FRIDAY	6
SATURDAY	7

Table 5

- F8 (Exit):

  The F8 (Exit) function will cause the MIPROM 21 – Software Module to exit the “Set day – date” function and update the Communication Link to Elevator System window allowing the user to select one of the Timer Adjustment Mode functions.

MSU (Ctrl + M):

The MSU Adjustment Mode gives the user the ability to control and analyze the vertical motion of the elevator with respect to the hoistway. When the user select the MSU Adjustment Mode function within the MIPROM 21 software module the Communication Link to Elevator System window will update similar to the Communication Link to Elevator System window displayed in Figure #70.

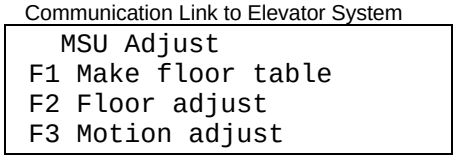

Figure 70

From the MSU Adjustment Mode, the user is presented with several options. These option are described as follows:

F1 Make floor table:

The "Make floor table" function of the MSU Adjustment Mode is used to have the elevator learn the position of each landing within the hoistway. This function is invoked by selecting the function key shown beside the "Make floor table" function. The "Make floor table" function is described in detail in the "Make floor table" section of this manual.

F2 Floor adjust:

The "Floor adjust" function is used when a car does not stop dead level with a landing. To adjust the car in the up or down direction the user would select the function "Floor adjust". When the "Floor adjust" function is selected, the Communication Link to Elevator System window will update similar to the one displayed in Figure #71. More information on the Floor adjust function is given in the section of this manual labeled "Floor adjust".

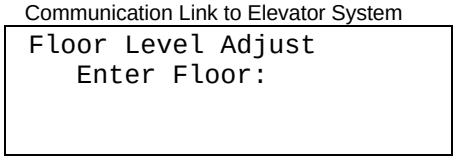

Figure 71

F3 Motion adjust:

"Motion adjust" is selected to view and change various adjustments dealing with the positioning and movement of the elevator. When the "Motion adjust" function is selected, the Communication Link to Elevator System window updates similar to the one seen in Figure #72.

The “Motion adjust” MSU Adjustment Mode function is described in detail in the section labeled “Motion adjust”.

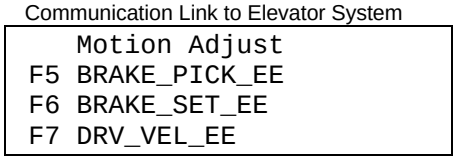

Figure 72

F4 (Next):

Pressing the F4 (Next) key in the MSU Adjustment Mode window causes the menu of available function to scroll to a window containing the next three items in order. In case there is not a multiple of three functions in the MSU Adjustment Mode, the window will scroll around to the first item on the list. Figures #73 and #74 show the possible MSU Adjustments. These MSU Adjustment functions are described in the following sections of this manual.

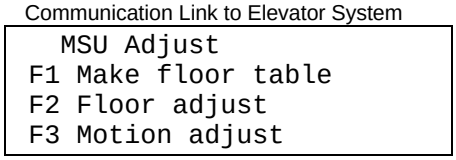

Figure 73

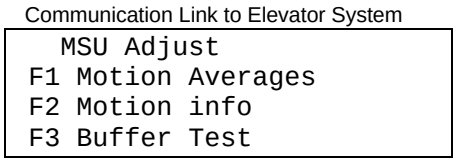

Figure 74

F8 (Exit):

The F8 (Exit) key will return the user to the main screen where “Ready” is displayed in the Communication Link to Elevator System window. When “Ready” appears the user may select any of the Adjustment or Diagnostic modes.

The MSU Mode functions are described in detail in the following sections.

- Make floor table:

  The “Make floor table” function is used to set up a hoistway or floor table for the elevator system. Jumpers will be necessary to run the car in inspection mode during the “Make floor table” function. Use the following directions to generate a floor table:

  1. Place car on inspection.
  2. Disable the car top safety by jumping SC to SC1.

3. Select the “Make floor table” function.
4. Follow instructions given by MIPROM 21 Software module in the Communication Link to Elevator System window.

- Floor adjust:

If the elevator does not stop level at a particular landing, the “Floor adjust” function can be used as an aid in correcting the problem of the car not being level at a particular landing. When the user selects the “Floor adjust” function from the MSU Adjustment Mode the Communication Link to Elevator System window will update similar to the window seen in Figure #75.

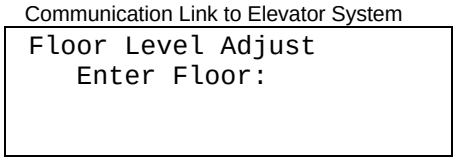

Figure 75

At this point, the user would use the keypad keys to select the desired landing and then press “Enter” to transmit the selected landing to the elevator system. Once the landing has been sent to the MIPROM 21 - elevator system, the Communication Link to Elevator System window will appear like the Communication Link to Elevator System window seen in Figure #76.

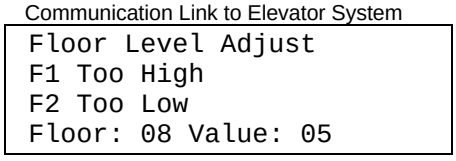

Figure 76

The “Floor Level Adjust” window displays the landing selected by the user and the current offset value for the selected landing. The user is given three options as to how to proceed. These options are described as follows:

- F1:

  In the “Floor Level Adjust” window, the F1 function key is assigned to the selection “Too High”. In the case of the “Floor Level Adjust” window, “Too High” means that the car stops above the level of the selected landing. When the “Too High” selection is made the Communication Link to Elevator System window updates as shown in Figure #77.

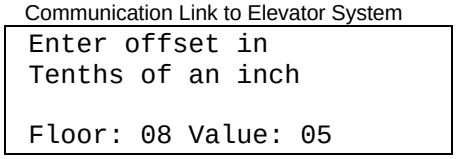

Figure 77

At this point, the user may enter in the necessary distance to lower the car down to floor level. This distance is in tenths of an inch and can only be ½ inch at maximum. If the distance needed to lower the car down to floor level is greater than ½ of an inch, a "Make floor table" operation should be performed. To leave the floor level unchanged, select the F8 (Exit) function key. This will cause the "Floor adjust" function to request the user to type in a new landing number.

- F2:

  Similar in operation to the previously described "Too High" selection, the "F2 Too Low" selection will adjust the car, up to ½ of an inch in the up direction. This will allow the car to stop level with the selected landing. If the distance to be adjusted is greater than ½ of an inch, a "Make floor table" operation should be performed.

- F8 (Exit):

  The F8 (Exit) function will cause the MIPROM 21 – Software Module to exit the "Floor Level Adjust" function and request the user to select a new landing to adjust. If the user does not wish to adjust the height of any other landings, the user would select the F8 (Exit) function to return to the "MSU Adjust" window.

- Motion Adjust:

The "Motion adjust" function of the MSU Adjustment Mode provides the user with an interface to view and adjust several motion-oriented functions within the MIPROM 21 – elevator system. The Communication Link to Elevator System window appears as in Figure #78 when the "Motion adjust" function is selected.

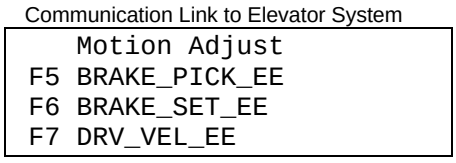

Figure 78

When the user selects the "Motion adjust" function, they have several options available to them. These options are the functions F5, F6, F7, F4 (Next), F3, and F8 (Exit). These functions are described as follows:

- F5:

The F5 key is used to select the first Motion adjustment listed within the "Motion adjust" function in the Communication Link to Elevator System. When a motion adjustment is selected from the "Motion Adjust" window the Communication Link to Elevator System window will update to show the selected motion adjustment as in Figure # 79.

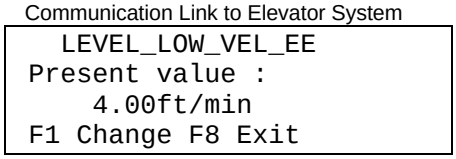

Figure 79

Figure #79 represents a selected motion adjustment in the Motion Adjust function. This window displays the selected motion adjustment and its current value. This window gives the user four options. These are described as follows:

F1:

The F1 function key is designated as the change function. If it is desired to alter the value of the selected motion adjustment, the user would select the "F1 Change" function. When the "F1 Change" function is selected the Communication Link to Elevator System window will update as in Figure #80.

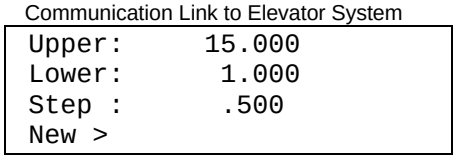

Figure 80

The window handling the change function for the motion adjustments displays the upper and lower limits along with the increments or steps the adjustment can be made in. After the user selects the "F1 Change" function, the bottom line of the Communication Link to Elevator System updates to show "New >". This is a prompt to the user to enter in a new value for the selected motion adjustment. Using the keypad keys, the user would type in the desired value for the selected motion adjustment. If the value entered is within the limits set by the elevator system, the Communication Link to Elevator System will update showing the new current value for the selected motion adjustment. Otherwise, an incorrect motion adjustment entry will cause the Communication Link to Elevator System window to update informing the user to an invalid entry as in Figure #81. To re-enter an acceptable value, the user would select the F8 (Exit) function and then type in a correct value.

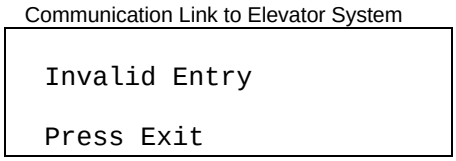

Figure 81

To leave the motion adjustment unchanged, select the F8 (Exit) function key.

F3:

To cause the "Motion Adjust" window to update showing the previous motion adjustment within the motion adjust menu, select the function key F3.

F4 (Next):

The F4 (Next) function advances the "Motion Adjust" window to show the next motion adjustment within the elevator's motion adjust list.

F8 (Exit):

The F8 (Exit) function will return the Communication Link to Elevator System window back to the "Motion Adjust" window.

- F6:

  The F6 function selects the second motion adjustment listed within the "Motion Adjust" window.

- F7:

  Selecting F7 will select the third motion adjustment displayed within the "Motion Adjust" window.

- F4 (Next):

  In order to see the next grouping of Motion Adjustments, the user can select the F4(Next) function. Motion Adjustments are listed in-groups of three adjustments. Every time the F4 (Next) function button is selected, a new list of three motion adjustments is presented in the Communication Link to Elevator System window. If the list does not contain a multiple of three motion adjustments the MIPROM 21 software module will fill the remaining adjustment slots with the necessary number of motion adjustments from the beginning of the list. A list of possible adjustments can be found in Table #6.

- F3:

  The F3 key will cause the "Motion Adjust" window to update showing the previous three adjustments available within the motion adjust function of the MSU Adjustment Mode. A list of possible adjustments can be found in Table #6.

- F8 (Exit):

  The F8 (Exit) function will cause the MIPROM 21 – Software Module to exit the motion adjust function and update the Communication Link to Elevator System window allowing the user to select one of the MSU Adjustment Mode functions.

Table 6 Motion Adjust – Motion Adjustments List

Name	Description
LEVEL_LOW_VEL_EE	
RUN_LOW_VEL_EE	
BRAKE_PICK_EE	
BRAKE_SET_EE	
DRV_VEL_EE	
I_DRV_VEL_EE	
JOG_ADJ_EE	
MAX_FLOOR_ERROR_	
MIN_POS_ERR_EE	
MIN_SAMPLE_COUNT	
MIN_STP_VEL_EE	
RELEVEL_ZONE_EE	
VELOCITY_TRIP_EE	
SEARCH_LIMIT_EE	
PL_JERK_EE	
PL_VELOCITY_EE	
MIN_OVRSPD_BND_EE	
MAX_MOTOR_RPM_EE	
RELEVEL_TIME_EE	

Table 6 Motion Adjust – Motion Adjustment List (continued)

Name	Description
ACCEL_EE	
DECEL_EE	
JERK_EE	
LZ_EE	
MVEL_EE	
ZERO_CMD_TIME_EE	
MOTOR_ENCODER_EE	
REAR_DD_HALL_TIME	
MIN_RUN_CMD_EE	
MIN_LEVEL_CMD_EE	
NOISE_THRESHOLD	
DC_LD_GAIN_EE	
DC_LD_TIME_EE	
PL_LOAD_EE	
ALT_ACCEL_EE	
ALT_DECEL_EE	
ALT_JERK_EE	
ALT_LZ_EE	
ALT_MVEL_EE	

Table 6

- Motion Averages:

  The user at some point may want to view how the motion of the car is performing through the hoistway. This performance can be viewed using the “Motion averages” function of the “MSU Adjust” window. When the “Motion Averages” function is selected, the tool waits for the car to make a run. While the car is making a run, the elevator creates a “snap-shot” of

the speed characteristics of the elevator system. After the elevator stops performing its run, the tool displays the Motion Averages information in two possible screens. The F3 and F4(Next) function may be used to toggle between the two "Motion Averages" screens. To cancel the Motion Averages function, select the F8 (Exit) function key.

- Motion info:

  Performance information for the connected car can be viewed using the Motion Info function. The Motion Info function provides the user with five screens of data relating to the operation of the connected car. The F4 (Next) and F3 function keys are used to scroll between the five different "Motion Info" windows of the MIPROM 21 – software module. Use the F8 (Exit) function key to return to the MSU Adjust function selection screen.

- Buffer Test:

  To test the performance of the elevator safeties in regards to the speed limiting system and the buffers, the user would select the function "Buffer Test". When the Buffer test is invoked, the user is asked as to their desire to perform the test. If the user selects "Yes", the software module instructs the user to enter a terminal landing call. When the call is entered at a terminal landing, the car will perform the buffer tests. Follow any on-screen instructions while performing the Buffer Test function.

Drive (Ctrl + D):

The Drive Adjustment Mode gives the user the ability to control and analyze the drive system of the MIPROM 21 - elevator control system. When the user select the Drive Adjustment Mode function within the MIPROM 21 software module the Communication Link to Elevator System window will update similar to the Communication Link to Elevator System window displayed in Figure #82.

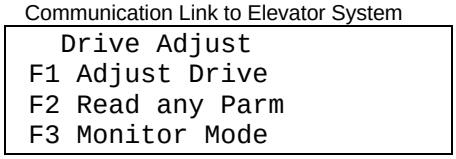

Figure 82

From the Drive Adjustment Mode, the user is presented with several options. The first three options are described as follows:

F1 Adjust Drive:

The Adjust Drive function of the Drive Adjustment Mode allows the user to make adjustments with respect to the operation of the Drive System.

F2 Read any Parm:

In the MIPROM 21 – elevator control system, the drive unit has its own fault codes and adjustments. To view any of these "parameters"" within the drive unit the user would select the function "Read any Parm". The "Read any Parm" function requests the user to type in the parameter number they wish to diagnose or adjust.

F3 Monitor Mode:

The drive "Monitor Mode" gives the user the ability to monitor, up to four, specific drive signals. Figure #83 shows the Communication Link to Elevator System window as it appears when the "Monitor Mode" of the Drive Adjustment Mode is selected.

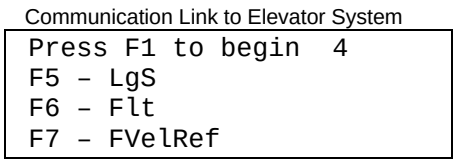

Figure 83

F4 (Next):

Pressing the F4 (Next) key in the Drive Adjustment Mode window causes the menu of available functions to scroll to a window containing the next three items in order. In case there is not a multiple of three functions in the Drive Adjustment Mode, the window will scroll around to the first item on the list. Figures #84 through #86 show the possible Drive Adjustment functions.

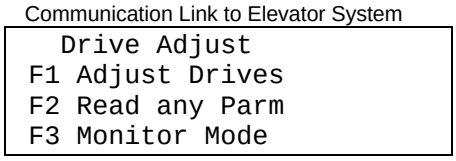

Figure 84

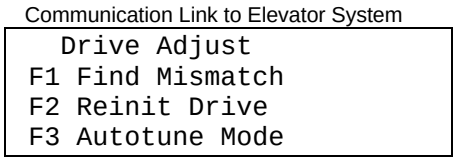

Figure 85

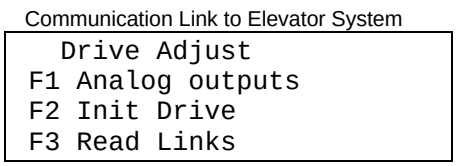

Figure 86

F8 (Exit):

The F8 (Exit) key will return the user to the main screen where “Ready” is displayed in the Communication Link to Elevator System window. When “Ready” appears the user may select any one of the Adjustment or Diagnostic modes.

Diagnostic Mode:

The MIPROM 21 (Megatech) software module for the FREEDOM Tool utilizes a diagnostics system found within the MIPROM - 21 elevator control system. This diagnostic system allows the user to determine the current operational status of the elevator system, along with reading error logs, and testing I/O subsystems. It is important to notice that before entering any of the Diagnostic Modes the Communication Link to Elevator System window should show the text “Ready”. If “Ready” is not displayed within the Communication Link to Elevator System window, the tool will not act upon any of the Diagnostic Mode selections. The F8 (Exit) function is used to back out of the current tool mode to the “Ready” screen. A brief description of each Diagnostic Mode follows:

Debug (shift + D):

The MIPROM 21 elevator control system utilizes a system for debugging must problems the elevator will encounter. This system is contained within the Debug Diagnostic Mode of the MIPROM 21 software module. The Debug Diagnostic Mode contains several functions that instruct the user as to why the car is not running, what operation the car is in, the current state of I/O signals, and memory contents. These functions are described, later, in this section of the manual. When the Debug Diagnostic Mode is selected from the FREEDOM Tool MIPROM 21 software module, the Communication Link to Elevator System window will update similar to the one seen in Figure #87.

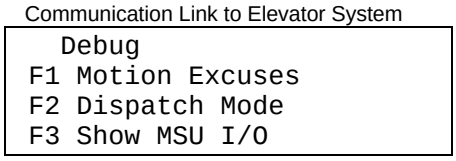

Figure 87

From the Debug Diagnostic Mode, the user is presented with several options. These option are described as follows:

- Motion Excuses:

  Any time the car is not running for an unexplained reason, the user should check the “Motion Excuses” function of the Debug Diagnostic Mode. The “Motion Excuses” window provides a description of the problem with the elevator. This problem is what the elevator diagnosed as the reason the elevator shut down. Figure #88 shows the “Motion Excuses” window.

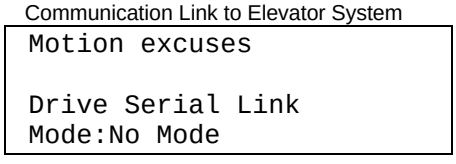

Figure 88

The car being diagnosed in Figure # 88 is not running because of a “Drive Serial Link” error. Table #7 shows the possible Motion Excuses for the Motion Excuses function of the Debug Diagnostic Mode.

Table 7 Motion Excuses

Bad Floor Table	Car Over Loaded
Car Gate Open	Contactor Timer
Door Gate Open	Disp. Emerg. Stop
Disp. Open Doors	Disp. Removed Request
DS Open	DSD Open
ETS Open	Moving
Not Safe Yet	No BC Feedback
No Demand	No Mode
No Retries Left	Reset Drive
Sequence Timer	SH Open
Shutdown	STP Open
ST Open	US Open
Velocity not Zero	Top NET Feedback
Bottom NET Feedback	

Table 7

The F8 (Exit) function key is used to return to the Debug Diagnostic Mode function selection screen.

- Dispatch Mode:

The Dispatch Mode function is used to determine what mode of operation the car currently is in. When the Dispatch Mode function is selected, the Communication Link to Elevator System window will update showing the subsystems of the MIPROM 21 - elevator controller. Refer to Figure #89.

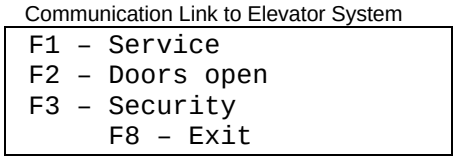

Figure 89

The three main subsystems shown in the “Dispatch Mode” window seen in Figure #89 are the Service, Doors open, and Security. Table #8 shows the various dispatch modes of operation available in the MIPROM 21 software module.

Table 8 Operation Modes

Normal Mode	Independent Mode
Lobby Return	Shutdown SW – Car
Shutdown SW – Hall	Hatch Access
Phase 1 Fire	Phase 2 Fire
Inspection Mode	Derailment
Freight Service	Hospital Recall
Hospital in Car	Inhibit Door
Motionless No Retry	Em. Power
Timer Out of Serv.	Position Not Known

Table 8

The F8 (Exit) function key is used to return to the Debug Diagnostic Mode, function selection screen.

- Show MSU I/O:

  The I/O state for the I/O signals handled by the MSU board in MIPROM 21 – elevator control system is evaluated in the function "Show MSU I/O". When the "Show MSU I/O" function is selected, the Communication Link to Elevator System window updates as shown in Figure #90.

Communication Link to Elevator System

```
SH   0 IA   0 HFI  0
SC   0 CLU  0 SFI  0
STP  0 UAX  0
ST   0 DAX  0
```

Figure 90

The MSU I/O window as shown in Figure #90 lists the MSU I/O signals and their current state. If a signal has a "0" beside it, the signal is inactive. A "1" displayed beside a signal name, designates an active signal. A list of I/O signals and their definition can be found in Appendix C. The F4 (Next) and the F3 function keys can be used to scroll through the different I/O windows found within the "Show MSU I/O" function of the Debug Diagnostic Mode. Use the F8 (Exit) function key to return to the Debug Diagnostic Mode, function selection screen.

- Show MSU Analog:

  Figure #91 shows the Communication Link to Elevator System window after the "Show MSU Analog" function is selected.

Communication Link to Elevator System

```
MI+  -16% LD     -16
MI-  -16%

VC  + 00%
```

Figure 91

- Vane Reader Chk:

  Figure #92 shows the Communication Link to Elevator System window as it appears when the "Vane Reader Chk" function is selected from the Debug Diagnostic Mode.

Communication Link to Elevator System

```
Vane Reader Check
Last floor: 00
Direction: Down
Status: bad   A: 00
```

Figure 92

- Dump Memory & Write Memory

Figure #93 shows the Communication Link to Elevator System window as it appears when the "Dump Memory" function is selected from the Debug Diagnostic Mode.

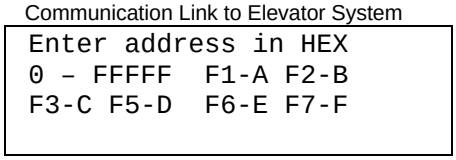

Figure 93

The "Dump Memory" function, initially, requests the user to type in a memory address for the location the user wants to view. The Address Buttons and Keypad keys are used to select the hexadecimal address to be viewed. After the address is typed in, the user must press the "Enter" key to transmit the address to the elevator system. Figure #94 shows the memory contents of hexadecimal address 8028A.

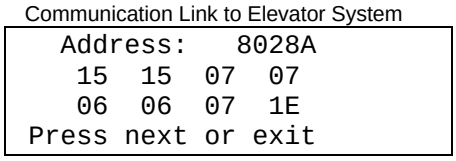

Figure 94

Use the F4 (Next) or F3 key to move forward or backward through the memory addresses. The F8 (Exit) will return the tool to the Debug Diagnostic Mode function selection screen.

- Show PIO I/O:

Like the Show MSU I/O function, the I/O state for the I/O signals handled by the PIO board in the MIPROM 21 – elevator control system is evaluated in the function "Show PIO I/O". When the "Show PIO I/O" function is selected, the Communication Link to Elevator System window updates as shown in Figure #95.

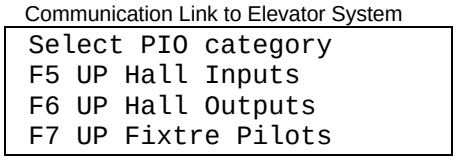

Figure 95

The PIO I/O window as shown in Figure #95 requests the user to select an I/O category, the user desires to debug. The Communication Link to Elevator System window shows only three I/O categories at a time. To display additional I/O categories, the user would use the F4 (Next) function key. Figures #96 through #99 show the possible I/O categories for the Show PIO I/O function.

Communication Link to Elevator System

```
Select PIO category
F5 DN Hall Inputs
F6 DN Hall Outputs
F7 DN Fixtre Pilots
```

Figure 96

Communication Link to Elevator System

```
Select PIO category
F5 Car to Common
F6 Common to Car
F7 Binary Fields
```

Figure 97

Communication Link to Elevator System

```
Select PIO category
F5 Fire Service
F6 Special Services
F7 Misc. I/O
```

Figure 98

Communication Link to Elevator System

```
Select PIO category
F5 Door Functions
F6 Car Call Inputs
F7 Car Call Outputs
```

Figure 99

Select the F8 (Exit) function key to return to the Debug Diagnostic Mode function selection window. Figure #100 shows the I/O displayed when one of the I/O categories is selected within the Show PIO I/O function.

Communication Link to Elevator System

```
DSF   0 DO17 0 DO3   0
DOX   0 DSD  0 PC    0
PCXU 0 PCXL 0 SEC   0
DO4   0 OBZ  0
```

Figure 100

Within the I/O display window, select the F8 (Exit) function key to return to the “Select PIO category” window.

- Show PIO map:

  The “Show PIO map” function gives the user the ability to view the I/O assignments made to each I/O board in the7I/O board card rack. When the “show PIO map” function is selected from the Debug Diagnostic Mode the Communication Link to Elevator System window updates requesting the user for the card rack number as seen in Figure #101.

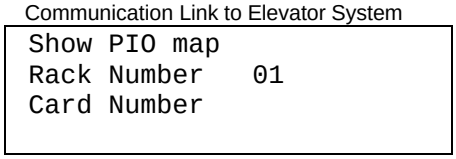

Figure 101

The user would select the desired card rack by typing in the card rack number with the keypad keys and then selecting “Enter”. After the card rack is selected the user is then prompted to enter the number of the desired card. In the example shown in Figure #101, the user selected card rack “01”. After the user selects the desired card and send it to the elevator control system by pressing the “Enter” button, the Communication Link to Elevator System window will update as in Figure #102. Figure #102 shows the I/O assignment for card #3 in rack #1.

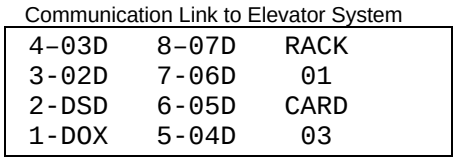

Figure 102

Use the F3 and F4 (Next) function keys to advance forward and backward through the possible I/O board assignments within the connected elevator control system. To return to the Debug Diagnostic Mode, select the F8 (Exit) function key.

Mode (shift + M):

The Mode Diagnostic Mode of the MIPROM 21 software module consists of tests for the PIO I/O system. When the user selects the Diagnostic Mode button labeled “Mode”, the Communication Link to Elevator System window updates as in Figure #103.

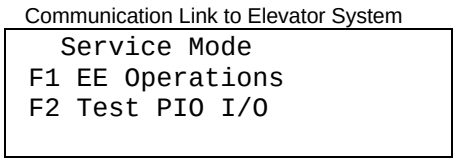

Figure 103

From the Debug Diagnostic Mode, the user is presented with two options. These two options are EE Operations and Test PIO I/O. At this time no instruction can be given on the functionality of the EE Operations function. The following section describes the Test PIO I/O function of the “Service Mode” window.

- Test PIO I/O:

  The Test PIO I/O function gives the user the ability to the test the operation of the PIO I/O board, I/O ports. When the Test PIO I/O function is selected, the Communication Link to Elevator System window updates giving the user three options. These options are Input

test, Output test, and Exit. Figure #104 shows the Communication Link to Elevator System window as it would appear when the Test PIO I/O function is selected.

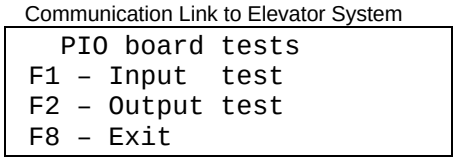

Figure 104

The Test modes for the PIO board tests are described as follows:

- F1 Input test:

  Selecting "F1 Input test" places the elevator control system in a mode where the Input signal boards connected to the PIO board are tested. Figure # 105 shows the Communication Link to Elevator System window as it appears when the PIO Input test is selected.

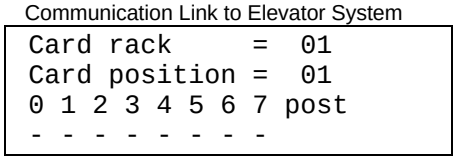

Figure 105

  The F4 (Next) and F3 function keys are used to change the PIO Input test to the next board within the Input Card Rack. Use the F8 (Exit) function key to terminate the Input test and return to the "PIO board tests" window.

- F2 Output test:

  Selecting "F1 Output test" places the elevator control system in a mode where the Output signal boards connected to the PIO board are tested. Figure # 106 shows the Communication Link to Elevator System window as it appears when the PIO Output test is selected.

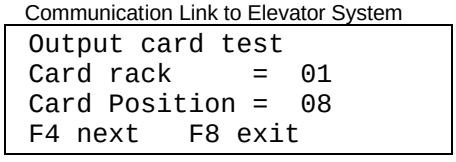

Figure 106

  The F4 (Next) and F3 function keys are used to change the PIO Output test to the next board within the Output Card Rack. Use the F8 (Exit) function key to terminate the Output test and return to the "PIO board tests" window.

F8 (Exit):

The F8 (Exit) key will return the user to the main screen where “Ready” is displayed in the Communication Link to Elevator System window. When “Ready” appears the user may select any one of the Adjustment or Diagnostic modes.

Log (Shift + L):

The Log Diagnostic Mode of the MIPROM 21-Software Module allows the user to view the elevator's error logs and system reset log. This mode of the MIPROM 21-Software Module is selected by using an associated screen control, keyboard accelerator, or menu selection. When the Log Diagnostic Mode is selected, the Communication Link to Elevator System window is updated to show the two elevator system logs as seen in Figure # 107.

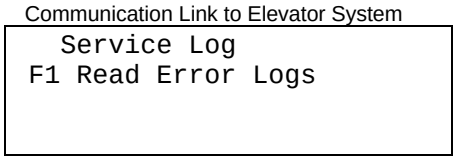

Figure 107

From the Log Diagnostic Mode, the user is presented with several options. These option are described as follows:

F1 Read Error Logs

The Read Error Logs function of the Log Mode of the Diagnostic Mode is invoked by selecting the F1 function button. Once the F1 function button is selected, the Communication Link to Elevator System window is updated as shown in Figure #108. The Read Error Logs function is described in detail in the Read Error Logs section of this manual.

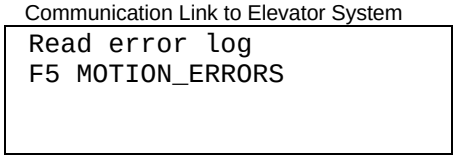

Figure 108

The remaining functions in the Log Mode are described in detail under their respective sections of this manual.

F8 (Exit):

The F8 (Exit) key will return the user to the main screen where "Ready" is displayed in the Communication Link to Elevator System window. When "Ready" appears the user may select any of the Adjustment or Diagnostic modes.

The Log Diagnostic Mode function is described in the following section..

- Read Error Logs:

  To read a "fault" log for the MIPROM 21 elevator system select the function "Read Error Logs". Whenever the elevator incurs a fault to the system, it makes an entry in the Error Log

noting the elevator time and date the fault occurred along with other information. Figure #109 shows the initial screen in the “Read Error Logs” function.

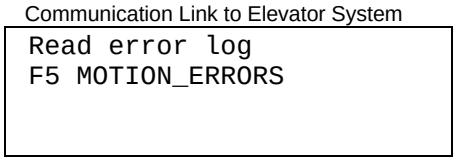

Figure 109

After the “Read Error Logs” function is selected, the user can choose to diagnose the “MOTION_ERRORS”. To select the “MOTION_ERROR” error log, choose the function key designated to the function label “MOTION_ERROR”. The Available function keys in the “Read error log” window are F5 and F8. Each of the available function keys and their assigned function are described as follows.

- F5:

  The F5 function selects the “MOTION_ERRORS” error log. This error log is used to diagnose the exact errors that caused a car to shut down. Selecting the “MOTION_ERRORS” error log will cause the Communication Link to Elevator System window to update as in Figure #110.

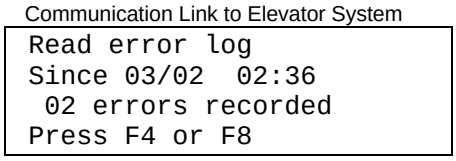

Figure 110

The Communication Link to Elevator System window as seen in Figure # 110 informs the user of the number of errors that have occurred since a displayed date and time. This date and time is the last time the error log was reset. The time displayed is relative to the elevator time, which is set through the Option Adjustment Mode. From this “Read error log” window the user is provided with two options. These options are described as follows:

F4:

Selecting F4 will update the Communication Link to Elevator System window so the most recent error is displayed. The F4 (Next) function key is used to scroll, forward through the list of errors. Figure #111 shows an example of an error log.

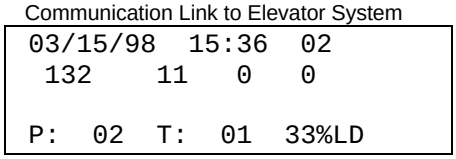

Figure 111

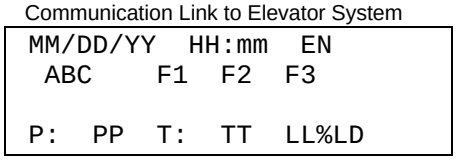

Figure 112

- The Error log screen is broken into three distinct lines. Using Figure #112 as a reference, the first line shows the date, relative to the elevator date, on which the error occurred in the form of MM (Month), DD (Day), YY (Year). Also found on the first line is EN (the number of the error on the error log list) and HH:mm (the time the error occurred in hours and minutes, relative to the elevator's clock).

- The second line of the Communication Link to Elevator System window contains information about the car as to its service type, motion, and direction. This information is represented by the "ABC". The first digit in this "ABC" code represents the type of operation the car was in at the time the error occurred. Table #9 defines all of the possibilities for position "A" on the second line of the Communication Link to Elevator System window.

Table 9 Error Log Car Information 1

Code #	Operation:
1	Normal
2	Inspection
3	Re-level
4	Search
5	Power limiting

Table 9

The car's motion, at the time the error occurred, is represented in the Communication Link to Elevator System window by the letter "B". The motion curve represented in Chart #1 depicts the car's velocity over a time period.

Chart 1 Motion Error Log – Motion Regions

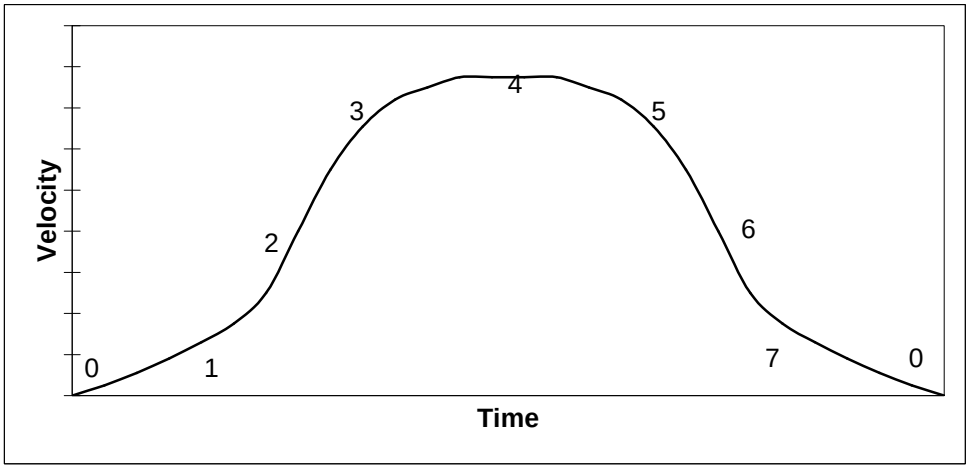

Chart 1

NOTE: The velocity curve, represented by Chart #1, can be broken into 7 distinct regions. These seven regions are defines as follows: 0 = Car is stopped, 1 = Car beginning to move, 2= Car ramping into high speed, 3 = Car just entering high speed, 4 = Car is in high speed, 5 = Car just leaving high speed, 6 = Car decelerating, and 7 = Car is coming to a stop.

The third digit in the "ABC" code, represented by the character "C", defines the direction of the car's motion. Table #10 shows the definition for the third digit "C" found on the second line of the Communication Link to Elevator System window.

Table 10 Error Log Car Information 2

Code #	Operation:
0	Stop
1	Up
2	Down

Table 10

The next three codes found on line 2 of the Communication Link to Elevator System window, represented by the characters "F1", "F2", and "F3" are the actual errors that occurred within the elevator system. For each error logged into the error log, there can be up to three distinct error code. These error codes are translated in Table #11.

Table 11 Error Log, Error Codes

Code #	Error Description	Elevator Action
11	DG Opened Outside Of Leveling	Emergency Stop
12	CG Opened Outside Of Leveling	Emergency Stop
13	M Contactor Dropped While Moving	Emergency Stop
14	BC Dropped While Moving	Emergency Stop
15	SS To SH Safety String Opened While Running	Emergency Stop
16	SH To SC Safety String Opened While Running	Emergency Stop
17	SC To STP Safety String Opened While Running	Emergency Stop
18	STP To ST Safety String Opened While Running	Emergency Stop
19	IR Relay Dropped While Running	Emergency Stop
20	ETS Dropped While Running	Slew Rate To A Stop
21	Up Stop Limit Open While Running (Not On Leveling Vane)	Emergency Stop
22	Down Stop Limit Open While Running (Not On Leveling Vane)	Emergency Stop
23	Drive Hard Faulted	Emergency Stop
24	Drive Soft Faulted (Temperature)	Normal Stop At Next Available Floor
25	Position Encoder Lost While Running	Slew Rate To A Stop
26	Brake Contactor Dropped While Running	Emergency Stop
27	Velocity Command Vs. Velocity Feedback Comparitor Tripped	Slew Rate To A Stop
28	Velocity Didn't Decrease On Slew Rate Stop	Emergency Stop
29	Invalid Target Request From Dispatcher	No Action
30	Dispatch Requested Panic Stop	Emergency Stop
31	Beam For Upper Vane Reader Interrupted When Not On Vane	Slew Rate To Slow Speed
32	Beam For Lower Vane Reader Interrupted When Not On Vane	Slew Rate To Slow Speed
33	Vane Not Detected By Upper Vane Reader In Vane Region	Slew Rate To Slow Speed

Table 11 Error Log, Error Codes (continued)

Code #	Error Description	Elevator Action
34	Vane Not Detected By Lower Vane Reader In Vane Region	Slew Rate To Slow Speed
35	Car Lost While Running	Normal Stop At Next Available Floor
36	Car Searching For Position After MSU Reset	No Action
37	BC Feedback Error	No Action
38	NTS System Activated	No Action
39	NTS Hoistway Switch Failed	No Action
40	Speed Switch Out Of Tolerance (150 Fpm)	Normal Stop At Next Available Floor
41	Speed Switch Out Of Tolerance (Intermediate)	Normal Stop At Next Available Floor
42	Speed Switch Out Of Tolerance (90%)	Normal Stop At Next Available Floor
43	BSF Open	No Action
44	TSF Open	No Action

Table 11

- The third line in the Communication Link to Elevator System window contains information relating to the position of the car (PP), the target floor of the car (TT), and amount of load upon the car as a percentage (LL).

F8 (Exit):

Selecting F4 (Next) until the end of the error list appears or selecting F8 (Exit) will cause the screen to update asking the user if they desire to reset the error log. Resetting the error log will cause the previously stored errors to clear. Clearing the Error Log will allow the tool to record up to 64 new errors within the log.

Keyboard Shortcuts	
Menu Item/Name	Accelerator Assigned
Keypad	
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
A	A
B	B
B	C
D	D
E	E
F	F
Enter	Enter
Response	
Up	Up arrow
Down	Down arrow
Yes	Y
No	N
Delete	Delete
Backspace	Backspace
Adjustment Mode	
Option	Control + O
Timer	Control + T
MSU	Control + M
Drive	Control + D
Diagnostic	
Debug	Shift + D
Mode	Shift + M
Log	Shift + L
Function Keypad	
F1	F1
F2	F2
F3	F3
F4	F4
F5	F5
F6	F6
F7	F7

Converting and Understanding the Hexadecimal Numbering System

The hexadecimal numbering system uses the numbers 0 – 9 and the letters A – F. This numbering system is a base-16 system that differs from the standard decimal numbering system, which is base-10. In the hexadecimal numbering system, the decimal numbers 0 through 9 have the same assignments as their decimal counterparts, but the numbering systems differ after the number 10. The decimal numbers 10 – 15 are represented with letters A – F in hexadecimal.

Decimal	Hexadecimal
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	A
11	B
12	C
13	D
14	E
15	F

Everything in the hexadecimal numbering system is based on the value 16. The following shows an example of how the decimal numbers 16 through 24 are represented in Hex.

Decimal	Hexadecimal
XX	AB
16	10
17	11
18	12
19	13
20	14

Converting Hexadecimal to Decimal:

To understand this, think of the hexadecimal number as two different values added together (AB = A + B). The first digit (A) in all the hexadecimal numbers represented above is a 1. This first digit represents the power of 16. The second digit represents multiples of “1”. A hexadecimal 10 would be 16 + 0, which is decimal equivalent “16”.

Example:

The hexadecimal digit 12 is equal to "(1 X 16) + (2 X 1)". This converts to the decimal number 18.

The hexadecimal number 48 is equal to "(4 X 16) + (8 X 1)". This converts to the decimal 72.

The hexadecimal number 4B is equal to "(4 X 16) + (11 X 1)". This converts to the decimal 75.

Converting Decimal to Hexadecimal:

To convert a decimal number to a hexadecimal number, the user should know the first 5 factors of sixteen. The first five factors of sixteen are:

1) $16^0 = 1$
2) $16^1 = 16$
3) $16^2 = 256$
4) $16^3 = 4096$
5) $16^4 = 65536$

After the first five factors of sixteen are known, the user should find the largest factor of sixteen that will divide into the decimal number. Determine how many multiples of that factor will divide into the decimal number by dividing the decimal number by that factor of sixteen times 1. This should give a result of a whole number greater than 0 and a decimal remainder. The whole number greater than "0" will be the leftmost digit in the hexadecimal number. After finding each digit subtract the value of that digit times its factor from the previous total. This process should be repeated until the remainder is a zero.

Example:
75 decimal to Hexadecimal number XXXXX

1) Find the largest factor of 16 that divides into 75
   16^4 does not divide into 75 so it will not work. 0XXXX
   16^3 does not divide into 75 so it will not work. 00XXX
   16^2 does not divide into 75 so it will not work. 000XX
   16^1 divides into 75 four times (4 X 16 = 64) therefore the hexadecimal number is now 0004X
2) Subtract 64 from 75: 75 – 64 = 11
3) Find the largest factor of 16 that divides into 11. It is already known that 16^1 was the last factor used, therefore the next factor must be lower. In this example, the only factor left is 16^0. It is determined that 1 divides into 11, 11 times. The hexadecimal equivalent of 11 is the alpha-numeric character "B".
4) The hexadecimal equivalent to the decimal value 75 is 4Bh.

PIO I/O's

I/O Signal Name:	I/O Signal Definition:
DSF	Front Door Close Button.
DOX	Front Door Open Button.
PCXU	Upper Photocell Shut-Off Key Switch In Car.
DO4	Front Reduced Speed Closing Pilot.
DO17	Front Door Close Limit.
DSD	Door Slowdown.
PCXL	Lower Photocell Shut-Off Key Switch In Car.
OBZ	Door Obstruction Buzzer.
DO3	Front Door Open Limit.
PC	Photocell Rear, Signal Is HI When Photocell Path Of Light Is Obstructed.
SEC	Safety Edge Rear.
DO7	Front Door Close Pilot.
DO10	Front Door Open Pilot.
DO19	Auxiliary Speed Control Pilot
01 C	First Floor Car Call Input
02 C	Second Floor Car Call Input
03 C	Third Floor Car Call Input
04 C	Fourth Floor Car Call Input
05 C	Fifth Floor Car Call Input
06 C	Sixth Floor Car Call Input
07 C	Seventh Floor Car Call Input
08C	Eighth Floor Car Call Input

I/O Signal Name:	I/O Signal Definition:
01 CJ	First Floor Car Call Output
02 CJ	Second Floor Car Call Output
03 CJ	Third Floor Car Call Output
04 CJ	Fourth Floor Car Call Output
05 CJ	Fifth Floor Car Call Output
06 CJ	Sixth Floor Car Call Output
07 CJ	Seventh Floor Car Call Output
08 CJ	Eighth Floor Car Call Output
01 U	First Floor Hall Call Input
02 U	Second Floor Hall Call Input
03 U	Third Floor Car Call Input
04 U	Fourth Floor Car Call Input
05 U	Fifth Floor Car Call Input
06 U	Sixth Floor Car Call Input
07 U	Seventh Floor Car Call Input
01 CJ	First Floor Car Call Output.
02 CJ	Second Floor Car Call Output.
03 CJ	Third Floor Car Call Output.
04 CJ	Fourth Floor Car Call Output.
05 CJ	Fifth Floor Car Call Output.
06 CJ	Sixth Floor Car Call Output.
07 CJ	Seventh Floor Car Call Output.
08 CJ	Eighth Floor Car Call Output.
01 U	First Floor Up Hall Call Input.

I/O Signal Name:	I/O Signal Definition:
02 U	Second Floor Up Hall Call Input.
03 U	Third Floor Up Hall Call Input.
04 U	Fourth Floor Up Hall Call Input.
05 U	Fifth Floor Up Hall Call Input.
06 U	Sixth Floor Up Hall Call Input.
07 U	Seventh Floor Up Hall Call Input.
01 UJ	First Floor Up Hall Call Output.
02 UJ	Second Floor Up Hall Call Output.
03 UJ	Third Floor Up Hall Call Output.
04 UJ	Fourth Floor Up Hall Call Output.
05 UJ	Fifth Floor Up Hall Call Output.
06 UJ	Sixth Floor Up Hall Call Output.
07 UJ	Seventh Floor Up Hall Call Output.
02 D	Second Floor Down Hall Call Input.
03 D	Third Floor Down Hall Call Input.
04 D	Fourth Floor Down Hall Call Input.
05 D	Fifth Floor Down Hall Call Input.
06 D	Sixth Floor Down Hall Call Input.
07 D	Seventh Floor Down Hall Call Input.
08 D	Eighth Floor Down Hall Call Input.
02 DJ	Second Floor Down Hall Call Output.
03 DJ	Third Floor Down Hall Call Output.
04 DJ	Fourth Floor Down Hall Call Output.
05 DJ	Fifth Floor Down Hall Call Output.

I/O Signal Name:	I/O Signal Definition:
06 DJ	Sixth Floor Down Hall Call Output.
07 DJ	Seventh Floor Down Hall Call Output.
08 DJ	Eighth Floor Down Hall Call Output.
01 UL	First Floor Up Fixture Pilot.
02 UL	Second Floor Up Fixture Pilot.
03 UL	Third Floor Up Fixture Pilot.
04 UL	Fourth Floor Up Fixture Pilot.
05 UL	Fifth Floor Up Fixture Pilot.
06 UL	Sixth Floor Up Fixture Pilot.
07 UL	Seventh Floor Up Fixture Pilot.
CUL	Up Car Riding Lantern.
02 DL	Second Floor Down Fixture Pilot.
03 DL	Third Floor Down Fixture Pilot.
04 DL	Fourth Floor Down Fixture Pilot.
05 DL	Fifth Floor Down Fixture Pilot.
06 DL	Sixth Floor Down Fixture Pilot.
07 DL	Seventh Floor Down Fixture Pilot.
08 DL	Eighth Floor Down Fixture Pilot.
CDL	Down Car Riding Lantern.
DGP	Door Gate Pilot From Car.
EPR	Manual Emergency Power Switch.
HCN	Hall Call Cancel Pilot.
LSP	Load Weight Pilot From Car.
NRML	Normal Service Pilot From Car.

I/O Signal Name:	I/O Signal Definition:
RSU	Up Direction Preference From Car.
ESCL	Emergency Power – In-Car Fire Service
TOS	Out Of Service Timer Pilot.
SBX	Run Pilot From Car.
EPS	Car Selected On Emergency Power.
CHSK	Car Call Handshake To Car.
CSV1	Common Service Toggle.
CSV2	Common Service Toggle.
DHSK	Hand Shake, Tells Car When It Is Going To Send Or Receive Data.
DN	Floor Down Hall Call Pilot To Car.
UDS	Up Drive Start Pilot To Car.
UP	Floor Up Hall Call Pilot.
EPS	Emergency Power Select Pilot To Car.
DDS	Down Drive Start Pilot From Common.
AESH	Alternate Floor Fire Recall.
AESS	Alternate Fire Sensor Signal.
ESB	Emergency Service Sensor Bypass.
ESC	Emergency Service Car.
ESCH	Emergency Service Car Hold.
ESCN	Emergency Service Car Cancel.
ESHP	Main Floor Fire Recall.
AESHP	Alternate Floors Service Pilot Light.
ESS	Fire Sensor Signal.
ESF	Flashing Emergency Sign.

I/O Signal Name:	I/O Signal Definition:
ESH	Fire Service Hall Pilot.
ESL	Fire Emergency Service Warning Light.
ESW	Emergency Service Warning Buzzer.

Table 1 (PIO I/O Definitions)

MSU Input/Output

I/O Signal Name:	I/O Signal Definition:
SH	Safety string hoistway.
SC	Safety string car.
STP	Car stop switch.
ST	Safety string total.
IA	Hatch access.
CLU	Common leveling unit.
UAX	Inspection up direction select.
DAX	Inspection down direction select.
HFI	Hard fault indicator.
SFI	Soft fault indicator.
CG	Car gate.
DG	Door gate.
SHP	Running indicator.
BCI	Balance complete indictor.
SB	Brake indicator.
DZU	Door zone down reader.

I/O Signal Name:	I/O Signal Definition:
ETSI	Emergency terminal stopping indicator.
TSF	Top slowdown switch.
US	Up direction stop.
BSF	Bottom slowdown switch.
DS	Down direction stop.
UA	Up direction pilot.
DA	Down direction pilot.
SBX	Brake pilot.
ESX	Emergency stop switch override.
ETS	Emergency terminal stop.
RR	Remote reset.
SM	Search mode.

Table 2 (MSU I/O Definitions)

WORLD electronics' Software Maintenance Agreement

1. Agreement

1.1 In consideration of the fee paid by Licensee for this Software Maintenance Agreement, WORLD electronics hereby agrees to provide maintenance and support services with respect to the Software Products.

2. Definitions

2.1 "Software Products" shall mean software released to Licensee by WORLD electronics.

2.2 "Software Update" shall mean any change to Software Products or Technical Data designated as a "Software Update" by WORLD electronics and released by WORLD electronics for the purpose of providing enhancements, improving performance, or improving the functionality of the Software Products.

2.3 "Service Request" shall mean communication from the Licensee to WORLD electronics via the World Wide Web, Email, facsimile transmission, or telephone call for the purpose of obtaining answers to questions about Software Products or Technical Data. The Licensee must identify the License Number pursuant to which the Service Request is made.

3. Updates

3.1 During the term of this Agreement, WORLD electronics will promptly deliver to the Licensee any Software Update issued by WORLD electronics for general use. Such Software Update shall thereafter be regarded as the Software Product which it supersedes. Upon issue of the Software Update it shall become the currently supported version. Support for the version of the Software Product superseded by the Software Update will continue for a reasonable period to allow time for conversion to the latest version, such period not to exceed beyond the termination of this Agreement. Support for other previous versions will be discontinued.

4. Support

4.1 During the term of this Agreement, WORLD electronics will provide reasonable assistance to Licensee by receiving and responding to Service Requests from Licensee during normal business hours. In the event that Service Requests raises questions on how to use the Software Products or Software Updates, WORLD electronics' response shall be made within a reasonable time and shall include answers, if known. In the event that Service Requests raises performance concerns about the Software Products or Software Updates WORLD electronics' response to each concern shall be made within a reasonable amount of time after it verifies the product performance issue. World electronics' response may include any of the following:

(1) instructions for fixing or avoiding the performance issue.
(2) modifications to the Software Products.
(3) a Software Update correcting the performance.

5. Term

5.1 The term of this Agreement shall commence on the effective date set forth above and shall end on the first anniversary of such date unless earlier terminated as provided herein.

5.2 This Agreement may be renewed for additional one year terms upon Licensees' payment of the Maintenance Agreement fee set forth in WORLD electronics' fee rate schedule, in place 60 days prior to the date the renewal is to be effective. Such payment must be received by WORLD electronics prior to expiration of the current term. WORLD electronics may modify the fees and other terms which would be applicable during any renewal term by written notice to Licensee at least 60 days prior to the end of the current term.

5.3 Upon written notice to Licensee, WORLD electronics shall have the right to terminate this Agreement:

(1) with respect to any discontinued Software Products.
(2) if Licensee is in breach of any terms or conditions of this Agreement.

5.4 In the event that Licensee elects to terminate this Agreement, any subsequent reinstatement shall be subject to a reinstatement fee in addition to WORLD electronics standard maintenance fee rate.

6. Limitation of Liability

6.1 WORLD electronics does not guarantee that the Software Products will be free of error. WORLD electronics does not guarantee that the Software Products will operate with future Original Equipment Manufacturers' Software Revisions. WORLD electronics agrees to provide its maintenance and support services pursuant to this Agreement in a commercially reasonable manner. WORLD electronics' support obligations do not apply to problems caused by alterations of the Software Products by Licensee, to problems where a Personal Computer executing the Software Products, and operated by the Licensee, does not meet the Minimum Requirements as indicated in the Software Products Manual.

UNDER NO CIRCUMSTANCE SHALL WORLD electronics BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, INCIDENTAL, OR SPECIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE SOFTWARE PRODUCT OR SOFTWARE UPDATES, INCLUDING, WITHOUT LIMITATION, DAMAGES, LOSS OF PROFITS, BUSINESS INTERRUPTION, OR LOSS OF INFORMATION. WORLD electronics' LIABILITY PURSUANT TO THIS AGREEMENT SHALL IN NO EVENT EXCEED THE FEES PAID BY LICENSEE TO WORLD electronics PURSUANT TO THIS AGREEMENT.