FREEDOM TOOL®

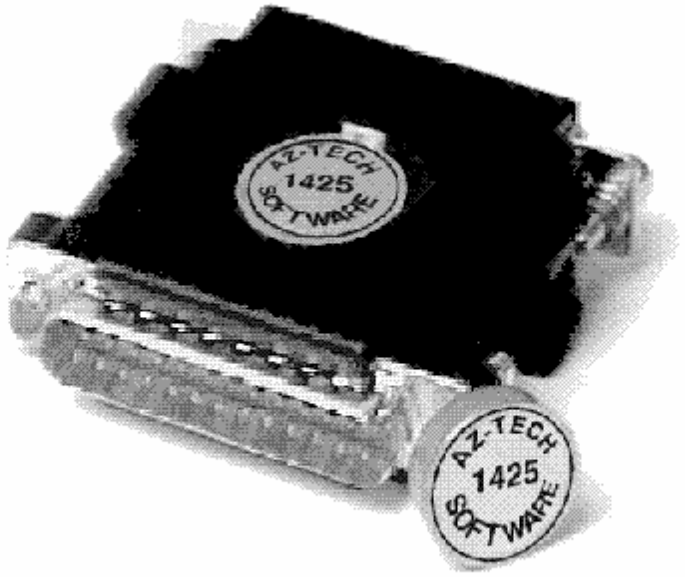
Schindler MPH

WORLD electronics

7502.9035

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.
MPH - I and MPH - II are trademarks of the Schindler 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.

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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 Schindler / Westinghouse MPH - I, MPH - II elevator control systems. All references to "**FREEDOM Tool**" throughout this manual implies that it pertains solely to the software systems that support the Schindler / Westinghouse elevator control systems.

FREEDOM Tool Features:

The FREEDOM Tool is a Graphical User Interface (GUI) and provides all the functions necessary to service the Schindler / Westinghouse 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 Schindler / Westinghouse 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 is provided as a package by WORLD electronics and 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
- Internal Fax/Data Modem

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 Schindler / Westinghouse 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 7502.9030" 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 "Applications" Icon by using the pointing device to position the cursor directly over the "Applications" Icon and double clicking the pointing device button. Refer to Figure #1.

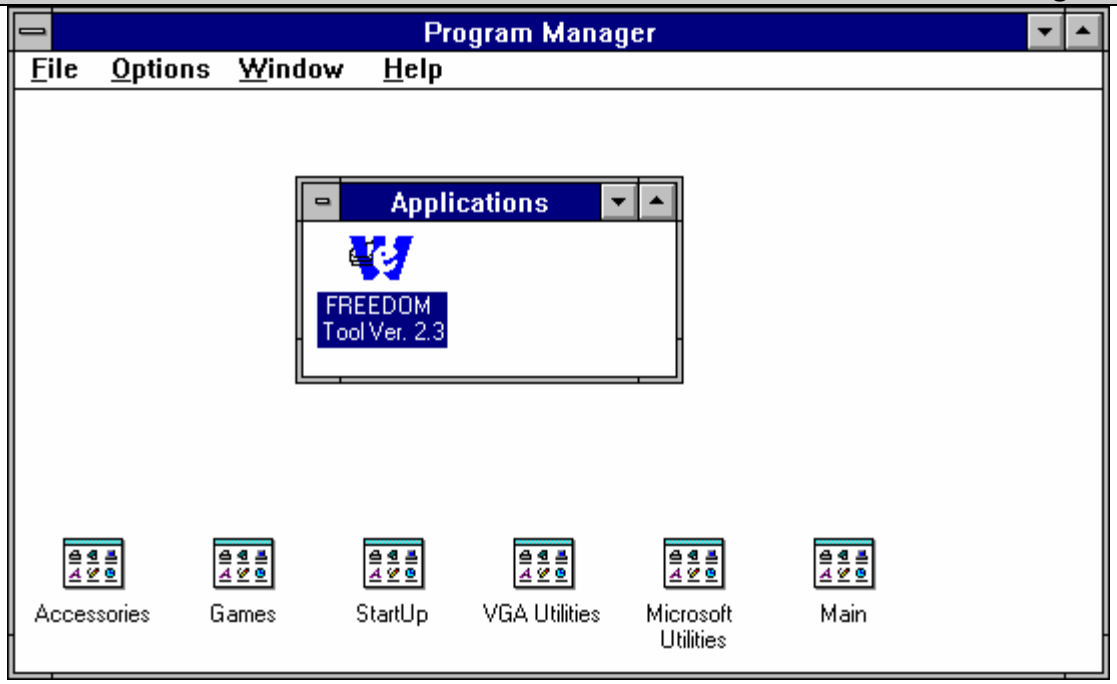

Figure 1

3. With the Applications 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’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 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.

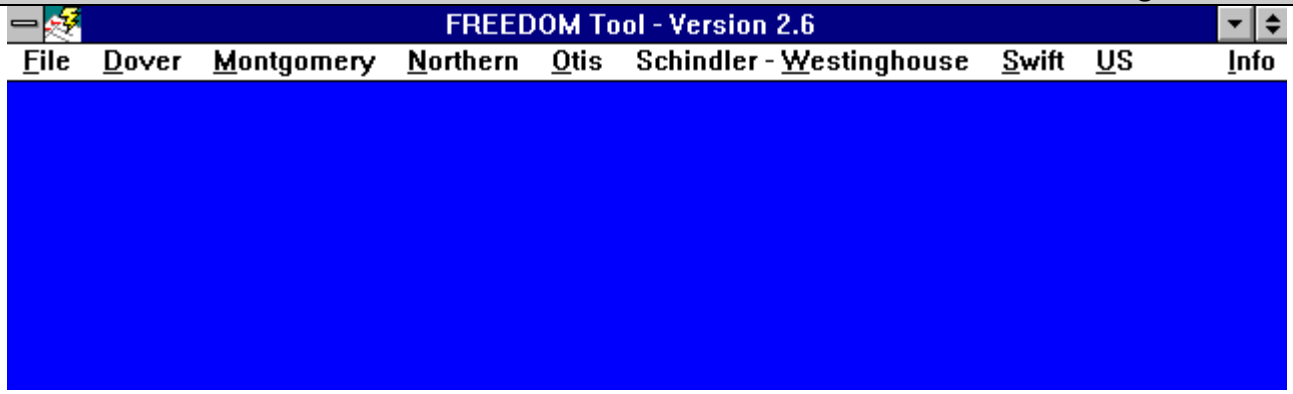

Figure 4

Starting the Schindler-Westinghouse 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 to pull down a list of controllers for each manufacturer as shown in Figure #5.

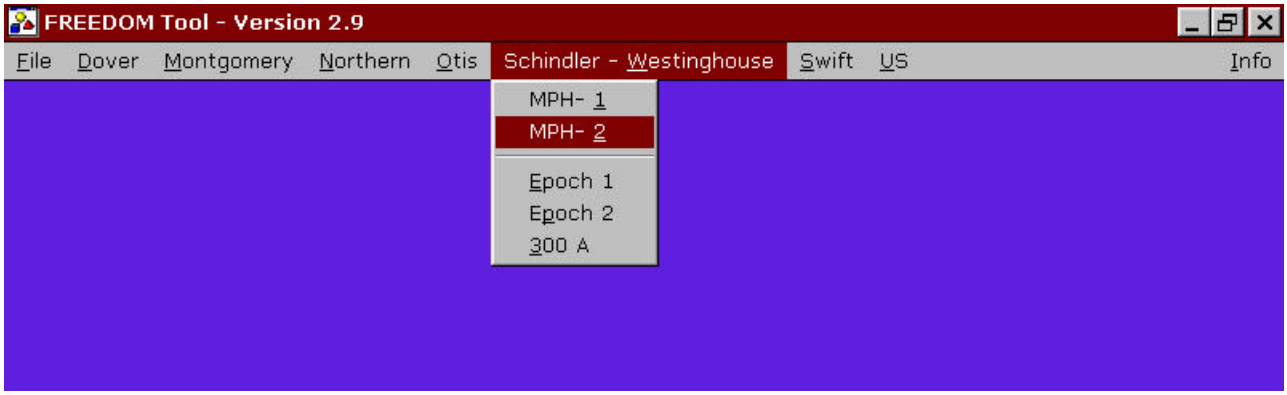

Figure 5

At this time notice that the “W” in the menu item “Schindler - Westinghouse” is underlined. This “W” is underlined because it is a built-in Microsoft Windows shortcut. 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 “Schindler - Westinghouse” and single click the pointing device button to display the Schindler - Westinghouse system menu elevator controller selections, shown in Figure #5.

3. There are a total of five elevator systems that the “Schindler - Westinghouse” tool will service. To select one of these systems, position the cursor over any one of the menu selections and single click with the pointing device button.

4. The “FREEDOM Tool Info” window will be displayed as in Figure #6 which indicates the software version selected, displays copyright information, and provides the 800 number in which to contact WORLD electronics. When finished viewing this window, continue by selecting OK with the notebook pointing device.

Figure 6

5. The “FREEDOM Tool: Security Key Information” window will be displayed as in Figure #7 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. At this time plug the “FREEDOM Tool Serial Interface Cable” into the MHC Processor Board 25-pin female connector. When the cable is connected, proceed by positioning the cursor over the OK button and single click the pointing device button.

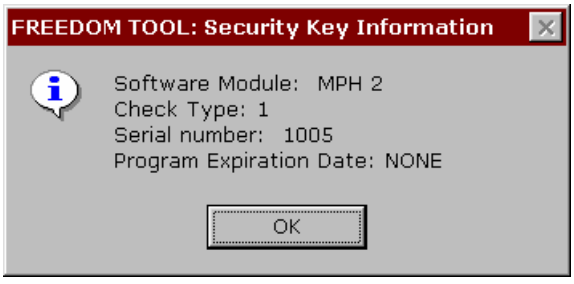

Figure 7

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 #8. 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 8

6. After connecting the serial cable and closing the Security Key Information window, the FREEDOM Tool User Interface Window will appear as in Figure #9.

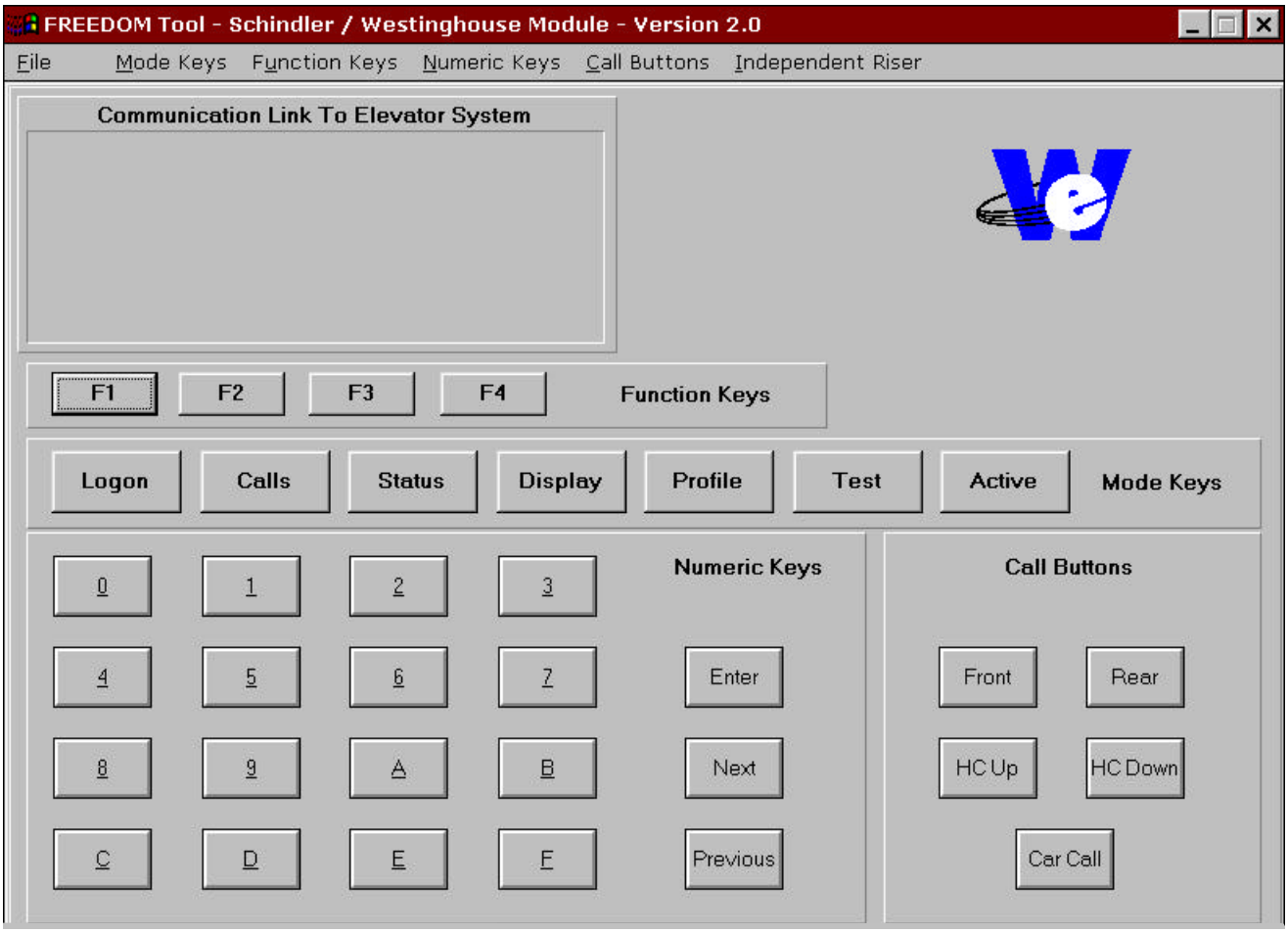

Figure 9

General Description:

The FREEDOM Tool is a multi-functional diagnostic tool that allows the user to do everything from diagnosing faults registering car calls. All software functions can be accessed from the FREEDOM Tool's Main window as seen in Figure #10.

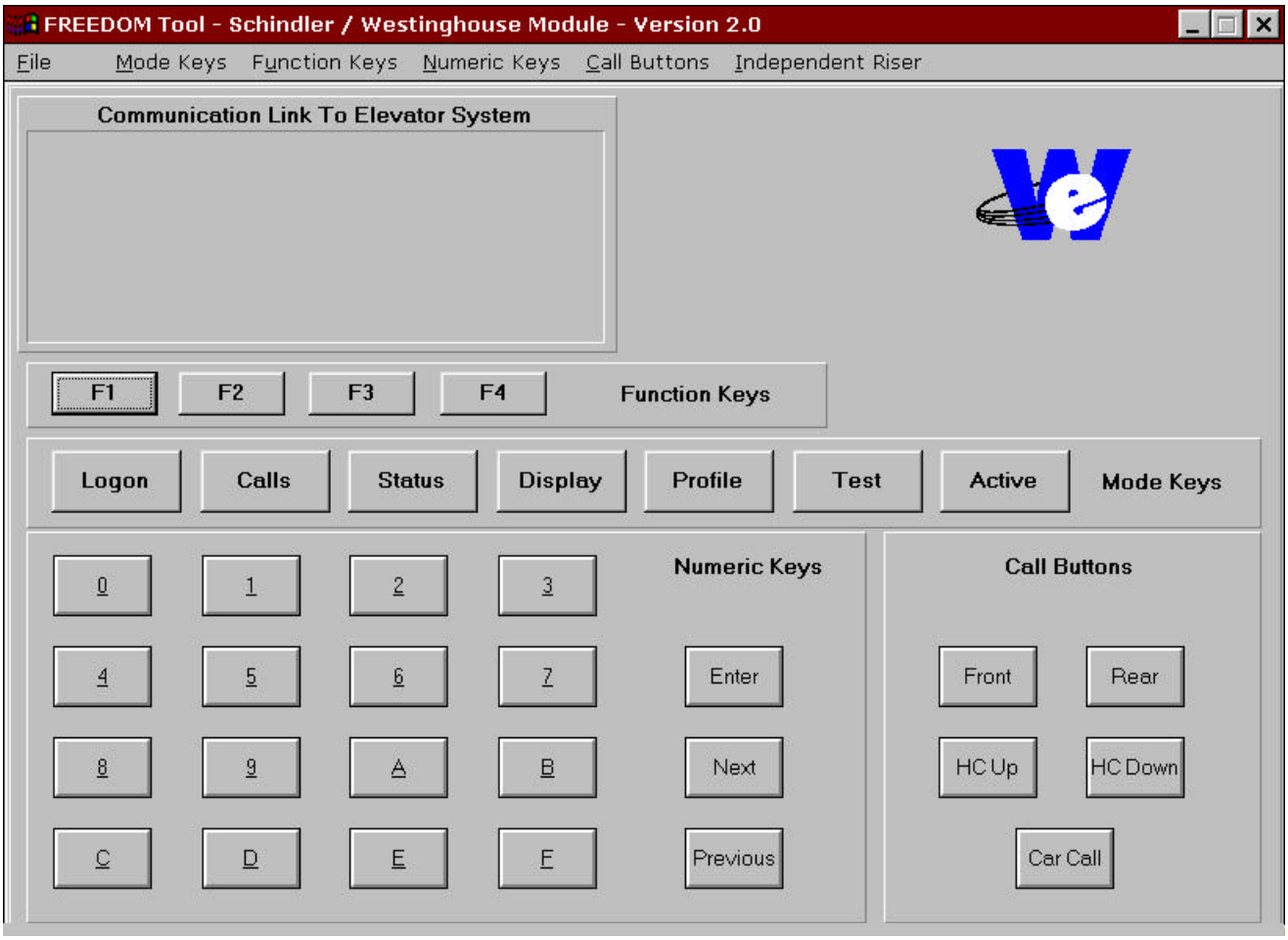

Figure 10

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 menu, the Communication Link to Elevator System, and screen controls. An overview of each of these three sections follows. For more detailed information about the operations with respect to the current elevator system being diagnosed please review the section of this manual for that elevator system.

- 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 mode the user puts the FREEDOM Tool in.

  - 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.

  - If the Communication Link window is filling with repetitive "5's", the elevator system requires the tool to re-logon. Follow the procedures described under "Logon" to perform a Logon to the elevator system.

- 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 Schindler / Westinghouse software module has six menu groups in which certain functions will occur. These six menu groups are labeled as follows: File, Mode Keys, Function Keys, Numeric Keys, Call Buttons, and Independent Riser.

  - File:

    The first of the six menu groups, File, lets the user exit out of the Schindler / Westinghouse software module. The "File" group has a single menu item as seen in Figure #11 labeled Exit. Beside the label Exit is another group 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 Schindler / Westinghouse software module at any point depress the following keys Control and X

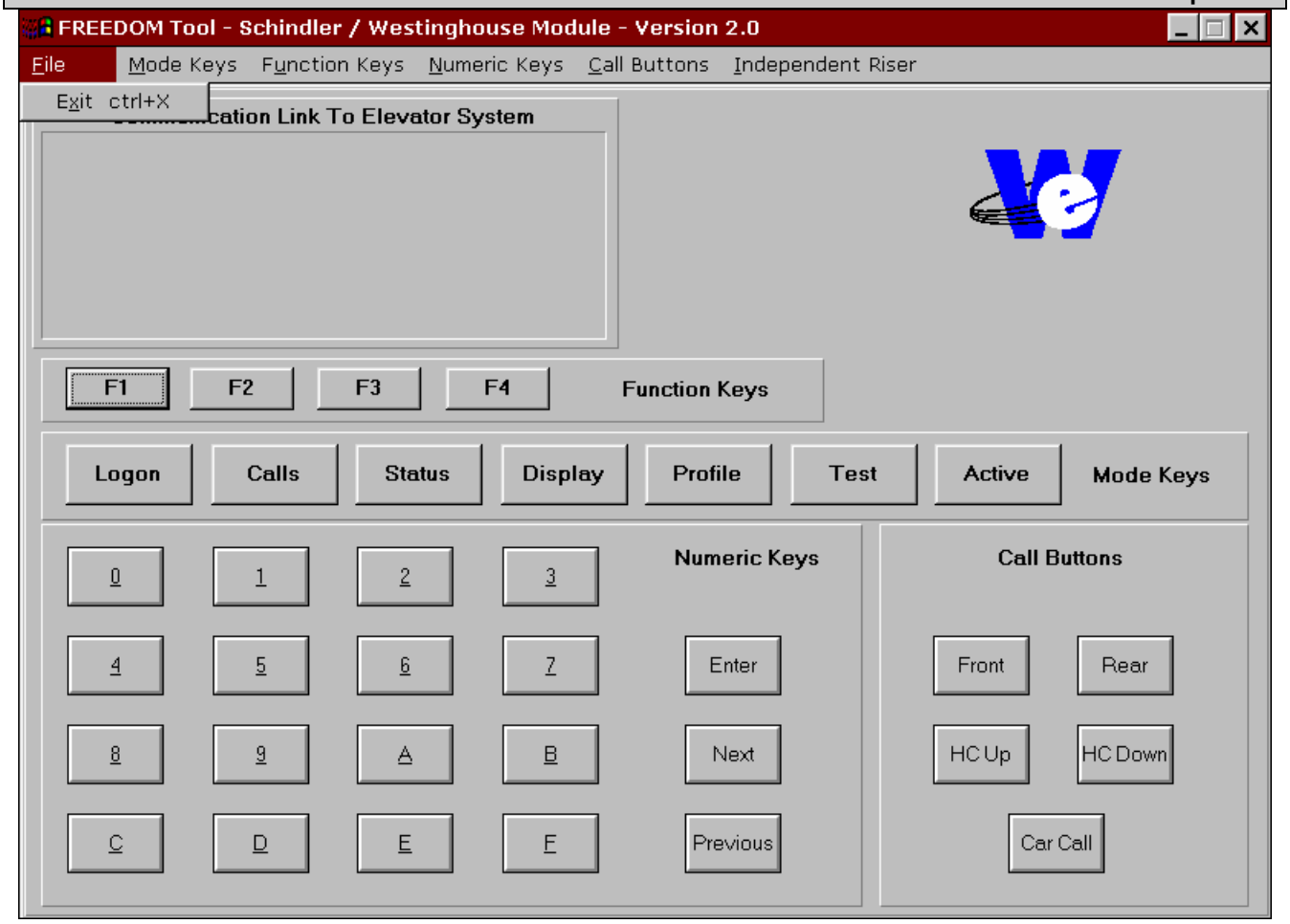

Figure 11

- Mode Keys:

  The seven mode selections found under the menu choice “Mode Keys” place the tool into seven distinct modes of operation. These modes are Logon, Calls, Status, Display, Profile, Test, and Active. Referring to Figure #12, notice that these mode selections also have keyboard accelerators assigned to them. The modes and their corresponding accelerators are described as follows:

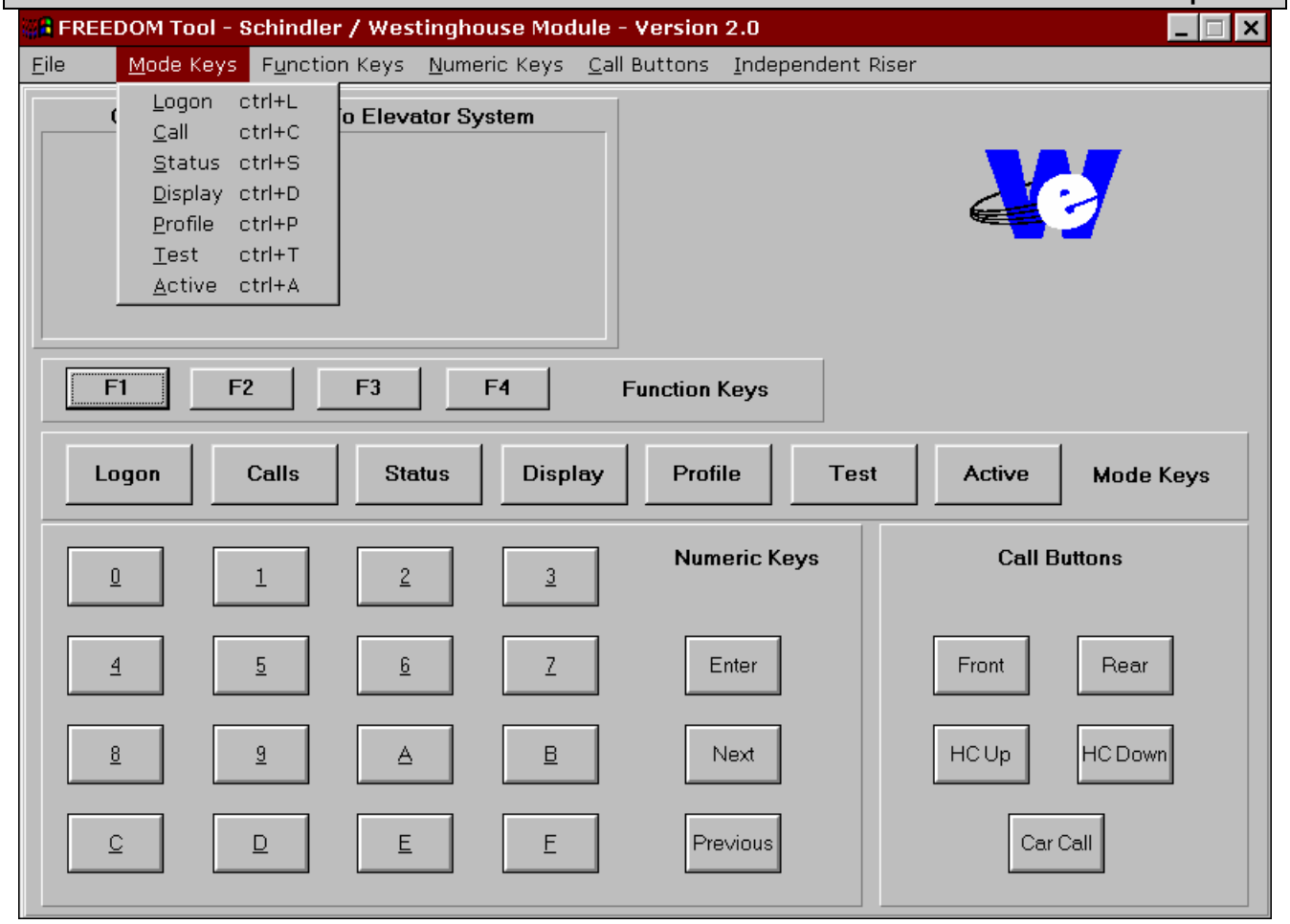

Figure 12

- Logon:

  Logon mode uses the keyboard accelerator “Ctrl + L”. Whenever the “Ctrl” key is depressed along with the “L” key the command to logon onto the elevator system is given by the tool. If the elevator is ready to allow a user to logon to it, the elevator will respond to the tool with communication string “LOGON”. Please refer to the section titled “Logging on to an Elevator system” for more detailed instructions on logging on.

- Calls:

  The Call mode of the Schindler / Westinghouse software module allows the user to perform various function with car and hall calls. The two main functions of this mode is to allow the user to set and display these calls. The Call Mode has “Ctrl + C” assigned to it as a keyboard accelerator. At any time within the Schindler/Westinghouse software module, depressing the “Ctrl” key along with the “C” key will invoke the Call mode of the tool. Please see the Call mode section of the elevator system currently being diagnosed for more information on how it works.

- Status:

  The keystrokes “Ctrl + S”, Control and “S” simultaneously, will invoke the Status mode of the Schindler/Westinghouse software module. The Status mode shows the user the current operating status of the elevator in terms of car and group operation. Please see the Status mode section of the elevator system currently being diagnosed for more information on how it works.

- Display:

  Inputs, Outputs, and memory locations are among some of the things that are found within the Display mode of the Schindler/Westinghouse software module. To invoke the Display mode of the tool the user would either select the Display menu item with the pointing device or use the keyboard accelerator “Ctrl + D”. For more specific information on the operation of the display mode, please see the Display mode section within the particular elevator system being diagnosed.

- Profile:

  The Profile mode of the Schindler/Westinghouse software module gives the user job-specific information on the elevator being diagnosed. Adjustments, timers, enabled floors, and security settings are among the choices that can be found within this mode. The keyboard accelerator “Ctrl + P” is one way of gaining access to the Profile mode. The other is by selecting the menu item “Profile” under the “Mode Keys” listing. A more detailed description of the functionality of Profile mode may be obtained under the section labeled “Profile mode” within the specific elevator section of the elevator being diagnosed.

- Test:

  When an individual device or I/O signal within the elevator system is desired to be diagnosed the user enables the Test mode of the Schindler/Westinghouse software module. This module is enabled by selecting the menu item Test under the “Mode Keys” section of the manual. Notice that Test is assigned the keyboard accelerator “Ctrl + T”. This keyboard accelerator can be used at any time as a shortcut to invoking the “Test mode” of the tool. Note: In most cases the elevator must be on Hand Operation before Test Mode can be enabled. More detailed information on the Test Mode can be found in the Test Mode section of the specific elevator being diagnosed.

- Active:

  Active Mode gives the user access to software specific features associated within a particular elevator system. This mode can be accessed by selecting the Active menu item within the Mode Keys section of the menu, or by selecting the keyboard accelerator “Ctrl + A”. For a more detailed description of Active mode for each elevator system.

- Function Keys:

  Within each mode of the Schindler/Westinghouse tool there are functions that allow the user access to software dependent functions. These function labels can be seen at the bottom of the window labeled “Communication Link to Elevator System”. Each function key will line-up with a corresponding function label. The function keys progress from left to right from F1 to F4. Referring to Figure #13 it is evident that there are accelerator keys assigned to the Function Keys. By depressing the keyboard button labeled “Ctrl” and the corresponding “F” key at the same time, the function at that location will be entered.

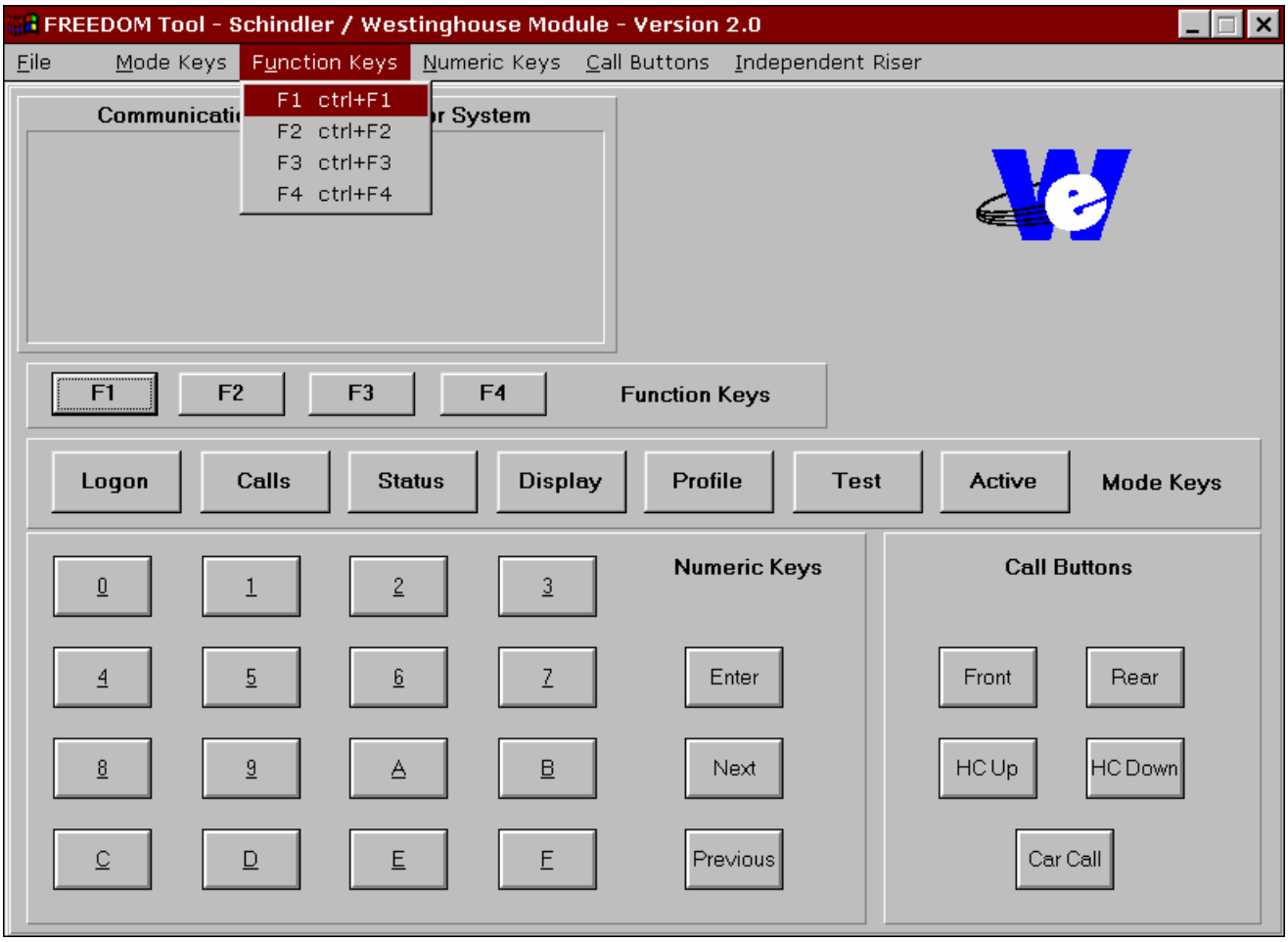

Figure 13

- Numeric Keys:

  Whenever data needs to be entered into a particular function within the Schindler/Westinghouse software module, the Numeric Keys as seen in Figure #14 will be used. Assigned to each option within the Numeric Keys menu selection are keyboard accelerator keys. The key that is used for the keyboard accelerator is the same as the label of the menu option, i.e. “A” for A, “Enter” for Enter, etc.

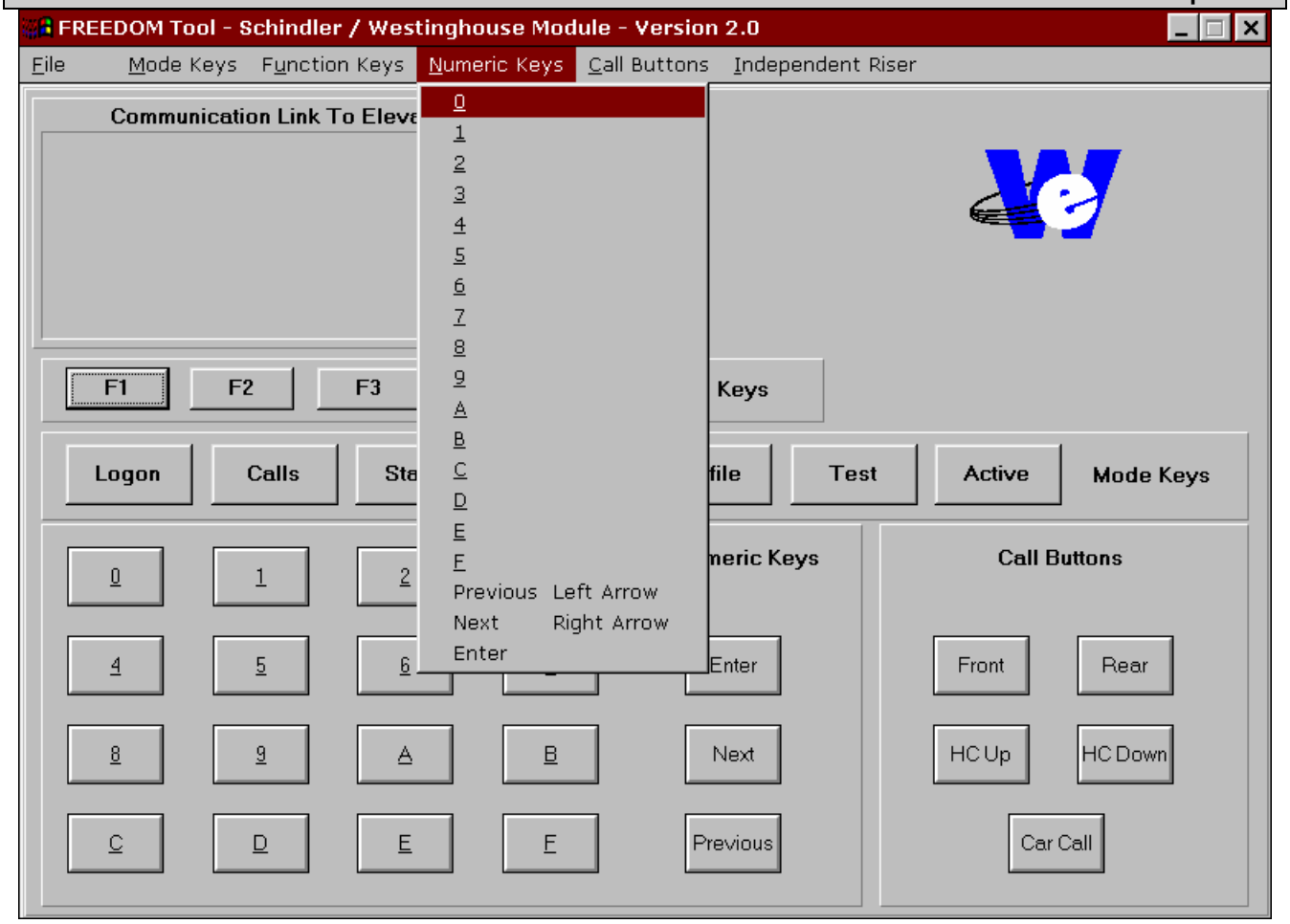

Figure 14

- Call Buttons:

  When the user is in Call Mode, the Call Buttons may be used to alter between front and rear car calls, front and rear up hall calls, and front and rear down hall calls. These choices can be seen in Figure #15. All commands within the Call Buttons Menu have keyboard accelerators associated with them. Refer to the additional label beside the desired call command to use the appropriate keyboard accelerator.

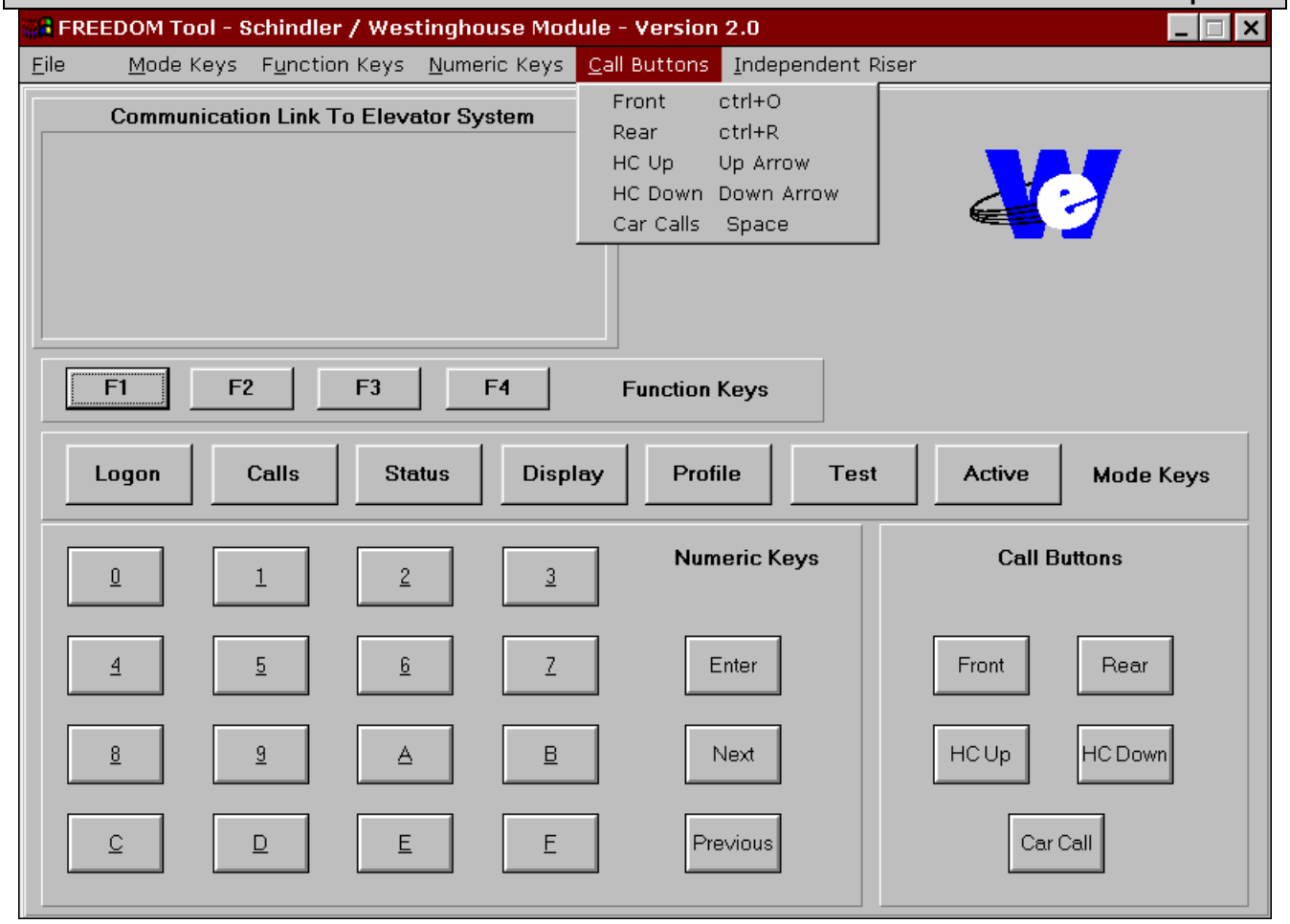

Figure 15

- Independent Riser:

  The Independent Riser menu selections, refer to Figure #16, allow the user to enter an Independent Riser Call in the Up or Down direction. Not all elevator controllers use this feature.

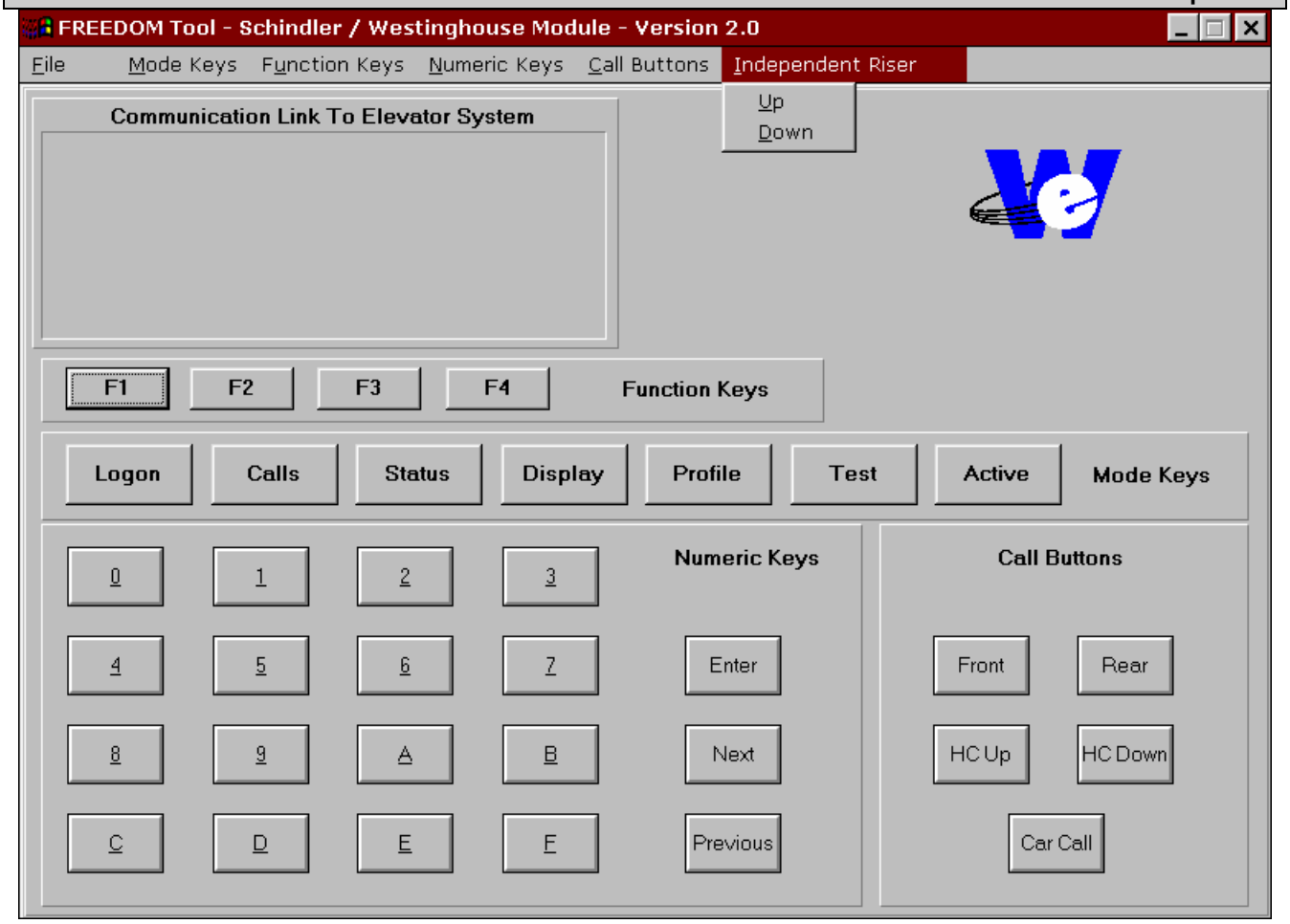

Figure 16

- Screen Controls:

  The screen controls within the Schindler/Westinghouse software module can be broken up into four 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 four distinct sections within the screen controls are the Function Keys, Mode Keys Numeric Keys, and Call Buttons.

  - Mode Keys:

    The seven mode selections found under the menu choice “Mode Keys” place the tool into seven distinct modes of operation. These modes are Logon, Calls, Status, Display, Profile, Test, and Active. The modes and their corresponding accelerators are described as follows:

    - Logon:

      Logon mode uses the keyboard accelerator “Ctrl + L”. Whenever the Control key is depressed along with the “L” key the command to logon onto the elevator system is

given by the tool. If the elevator is ready to allow a user to Logon to it, the elevator will respond to the tool with communication string “LOGON”. Please refer to the section titled “Logging on to an Elevator system” for more detailed instructions on logging on.

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- Status:

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- Display:

  Inputs, Outputs, and memory locations are among some of the things that are found within the Display mode of the Schindler/Westinghouse software module. To invoke the Display mode of the tool the user would either select the push button “Display” with the pointing device or use the keyboard accelerator “Ctrl + D”. For more specific information on the operation of the display mode, please see the Display mode section within the particular elevator system being diagnosed.

- Profile:

  The Profile mode of the Schindler/Westinghouse software module gives the user job-specific information on the elevator being diagnosed. Adjustments, timers, enabled floors, and security settings are among the choices that can be found within this mode. The keyboard accelerator “Ctrl + P” can be used to gain access to the Profile mode. A more detailed description of the functionality of Profile mode may be obtained under the section labeled “Profile mode” within the specific elevator section of the elevator being diagnosed.

- Test:

  When an individual device or I/O signal within the elevator system is desired to be diagnosed the user enables the Test mode of the Schindler/Westinghouse software module. This mode is enabled by selecting the button labeled Test or using the keyboard accelerator “Ctrl + T”. Note: In most cases the elevator must be on Hand Operation before Test Mode can be enabled. More detailed information on the Test Mode can be found in the Test Mode section of the specific elevator being diagnosed.

- Active:

  Active Mode gives the user access to software specific features associated within a particular elevator system. This mode can be accessed by selecting the Active push button within the Mode Keys section of the control window, or by selecting the keyboard accelerator “Ctrl + A”. For a more detailed description of Active mode for each elevator system.

- Function Keys:

  The Function Keys section of the control window allows the user to choose several sub-modes or functions within each mode. Each Function Button labeled “F1” through “F4” corresponds to a label that will be placed directly above it in the window labeled “Communication Link to Elevator System”. There are shortcuts assigned to these buttons which are a combination of the “Ctrl” key and the corresponding “F” key. Please review the appropriate mode section for the elevator system being diagnosed for more precise information on what the function keys do.

- Numeric Keys:

  Whenever a function or mode require input from the user, the Numeric Keys section of the control window gives the user the interface required to enter this data. The Numeric Keys section contains a hexadecimal key set ranging from “0” to “F”. It also has the necessary interfaces for going forward or backwards within a particular function and an Enter key to accept any data entered by the user. Each of these Numeric Keys has an accelerator assigned to it. The accelerator is the actual key represented by the text label on the button. For example: “A” key for the “A” button, “Enter” key for the “Enter” button, etc.

- Call Buttons:

  The Call Buttons are used when the user is in the Call Mode. These buttons provide the user the necessary interface to enter and display car calls, hall calls, and specify whether the call is for front or rear. Each of these buttons has a corresponding shortcut.

- Logging onto an Elevator System:

  When the user has properly connected to the elevator system being diagnosed and no tool has been logged on to the elevator for a period of five minutes, the Serial Link to Elevator System window will update with the number 5. This 5 is a signal to the user that the elevator is looking for a tool to log on to it. A new 5 will be sent approximately every two minutes until the tool logs onto the elevator. To log-on the user selects the Logon mode by either using the menu, the push button, or the keyboard shortcut. Done successfully, the Communication Link to Elevator System Window will update with the text LOGON. Refer to Figure #17.

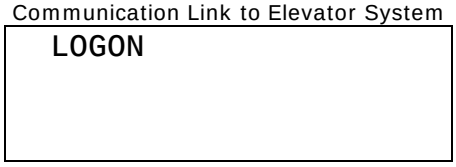

Figure 17

The text LOGON appearing is a signal to the user to enter the five digit logon code. This five digit logon code can be found printed on the EPROMS located on the Main Processor board in the system. The five digit code is actually the contract number affiliated with installation/purchase of the elevator system. It has been found that this number can be written just about anywhere within the machine room, i.e. controller cabinet, electrical conduiting, walls, door. After the five digit code has been punched in, the user should select the Enter key to have the elevator accept or reject the logon code. If no response is given to the user through the Communication Link to Elevator System window, the LOGON code was rejected and the Logon procedure should be repeated. When the Communication Link to Elevator System window is updated, the elevator has accepted the tool's logon code and the user can continue using the different modes of the tool.

Note: If there is no communication to the elevator system after a period of five minutes, the elevator will start transmitting the 5 character over the Communication Link to Elevator System window until a Logon procedure is completed.

System Information:

The information within the following sections gives detailed information on the operation of the tool in regards to each elevator system. Due to software changes within the elevator, the information described herein may be different than the actual operation of the tool with respect to the elevator system being communicated.

MPH-I:

- CALL Mode:

  Within the MPH-I diagnostic system calls may be entered and displayed through the tool. When the CALL mode is initiated through the tool, the screen will update informing the user as to what mode the tool is in and the available functions. Refer to Figure #18.

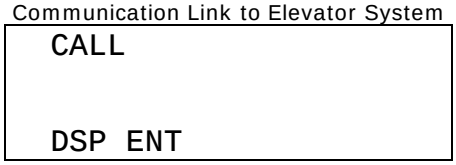

Figure 18

  - DSP:

    Used to display all registered car and hall calls. A “1” means a call is registered for that landing. “-“ means no call is registered for that landing. Figures numbered #19 through #24 show the different means to display car and hall calls.

Default: Front Car Calls:
Select: Calls and F1

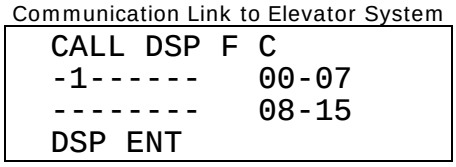

Figure 19

Rear Car Calls:
Select: Calls and F1 and Rear

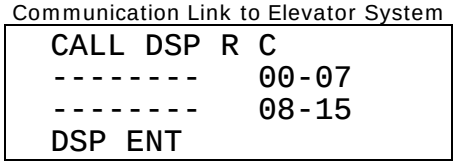

Figure 20

Front Up Hall Calls:
Select: Calls and F1 and HC Up

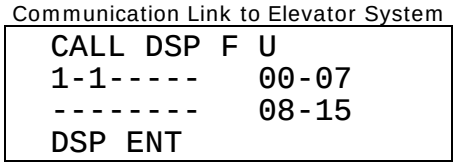

Figure 21

Front Down Hall Calls:
Select: Calls and F1 and HC Down

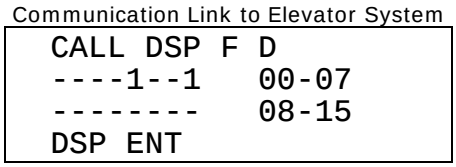

Figure 22

Rear Up Hall Calls:
Select: Calls and F1 and HC Up and REAR

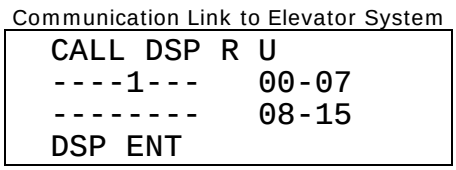

Figure 23

Rear Down Hall Calls:
Select: Calls and F1 and HC Down and REAR

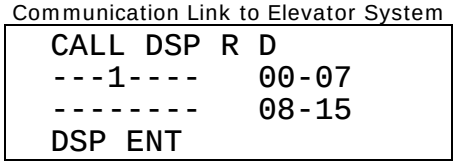

Figure 24

- ENT:

Used to display all registered car and hall calls. Figures #25 through #30 depict the different ways to register a call through the tool. Once a landing is entered the user can proceed to register a call at the previous or next landing by choosing the Previous or Next buttons respectively and then selecting Enter. When a call is entered the screen should update with the phrase “CALL ENTERED”.

Default: Front Car Calls:
Select: Calls and F2 and 01(Floor Number) and Enter

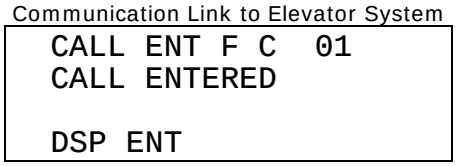

Figure 25

Rear Car Calls:
Select: Calls and F2 and REAR and 01(Floor Number) and Enter

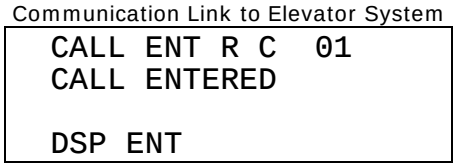

Figure 26

Front Up Hall Calls:
Select: Calls and F2 and HC Up and 01(Floor Number) and Enter

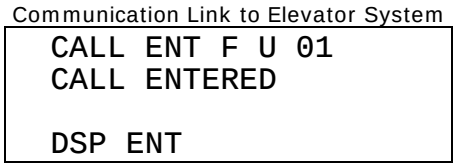

Figure 27

Front Down Hall Calls:
Select: Calls and F2 and HC Down and 01(Floor Number) and Enter

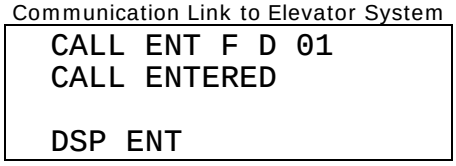

Figure 28

Rear Up Hall Calls:
Select: Calls and F2 and HC Up and REAR and 01(Floor Number) and Enter

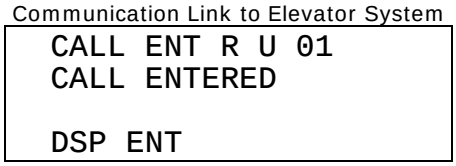

Figure 29

Rear Down Hall Calls:
Select: Calls and F2 and HC Down and REAR and 01(Floor Number) and Enter

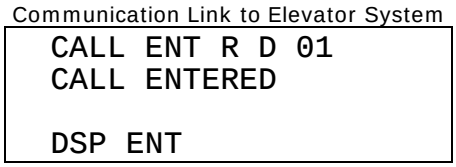

Figure 30

- Status Mode:

To get information on the status of communication between the MPH processor board and other components within the MPH-I elevator system can be viewed using the Status Mode. The Status Mode gives the user information as to communication problems between the controller and the FCB's located throughout the system. The ability to look at specific I/O and internal signals between individual cars and within a single car is given in the status mode. To enter the tool into status mode the user needs to select the button labeled Status or select Status from the mode keys menu. A keyboard shortcut of "Ctrl + S" will also enter the tool into Status Mode. Within the MPH-I elevator system Status has four functions associated with it. Refer to Figure #31. These functions are: FC, HFC, BNK, and CAB. A brief description of these functions within Status mode are described as follows.

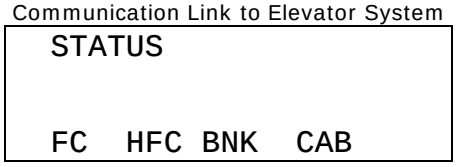

Figure 31

- FC:

  All floor controller boards(FCB's) are connected to the MPH-I processor by means of a serial link. The FC function displays to the user the status of this serial link to these FCB boards. If no problem exists within the serial link a status of COMM OK will appear within the communications link window. Otherwise the term, COMM PROBLEM, will appear and the number of the FCB board with the communication problem will be listed. If four boards are listed, the Next button may need to be used to view an additional list of bad boards within the FC serial link. Figures #32 and #33 show when the FCB board communications link is good and when it is bad respectively.

  Select: Status and F1

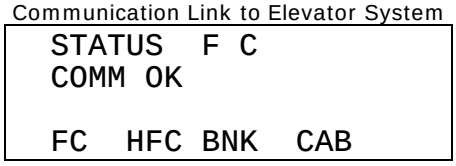

Figure 32

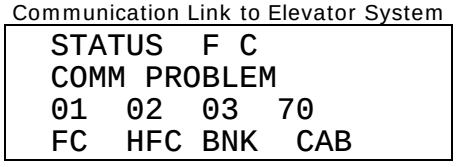

Figure 33

- HFC:

  All hoistway floor controller boards(HFCB's) are connected to the MPH-I processor by means of a serial link. The HFC function displays to the user the status of this serial link to these HFCB boards. If no problem exists within the serial link a status of COMM OK will appear within the communications link window. Otherwise the term, COMM PROBLEM, will appear and the number of the HFCB board with the communication problem will be listed. If four boards are listed, the Next button may need to be used to view an additional list of bad boards within the HFC serial link. Figures #34 and #35 depict a state when the communications link to the hoistway Floor Controller Boards are good and bad respectively.

Select: Status and F2

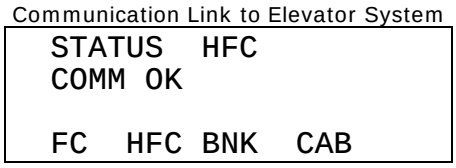

Figure 34

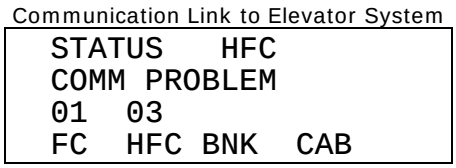

Figure 35

If the car is not a master controller the communications link to elevator system window will appear as in Figure #36.

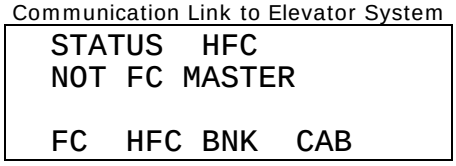

Figure 36

NOTE: The car being diagnosed must be the master controller for the system in order to get the communication status of the HFC communication link. By selecting Status and F3 and then selecting Next twice, the screen should appear as in Figure #37. Figure #37 shows the status of the group or bank signals of which the signal name FCMS is the master controller designation for an MPH-I elevator system. A "1" under a car number means that the car is a master controller for the group. A group of three cars or more can have up to two master controllers.

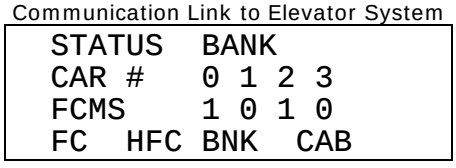

Figure 37

- BNK:

The bank or group status function within the MPH-I elevator system displays several internal signals within the group operation of the elevator system. The Bank status window displays the signal name, car number, and current signal status for the group. Refer to Figure #38. To move forward and backward through the list of bank status signals the Next and Previous buttons may be used respectively. A “1” means the condition is true for the signal name for that car. A “0” means the signal name has a False condition for that car. A table of all the available BNK signals and their description can be found in Table #1.

Group Communication Status (COMP)

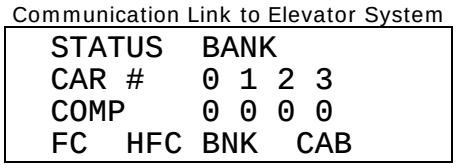

Figure 38

Dispatch Controller (DISP)

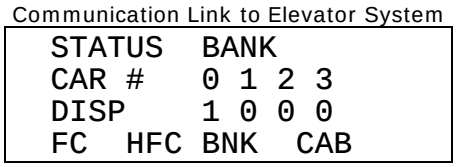

Figure 39

Master Controller (FCMS)

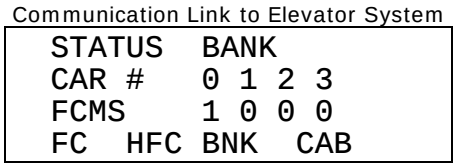

Figure 40

Floor Communication Link(FC) Problem (FC1P)

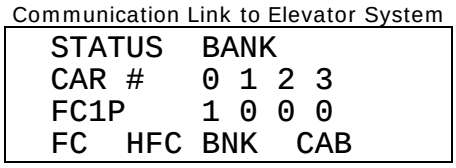

Figure 41

Cars currently in-service (INSV)

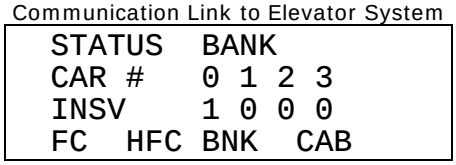

Figure 42

Cars currently available for service (AVAS)

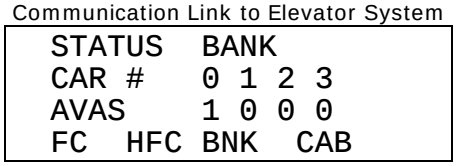

Figure 43

Cars traveling in the Up direction (UPTR)

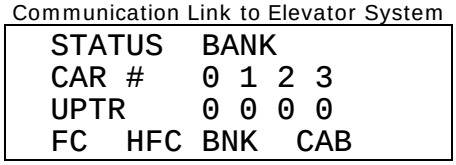

Figure 44

Car currently servicing a call in the Up direction (UPSV)

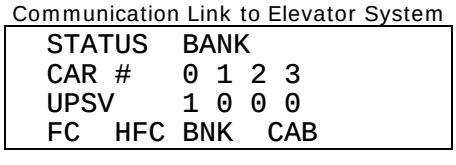

Figure 45

Landing where car will be stopping (AVP)

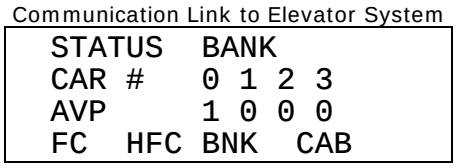

Figure 46

Door is closed or closing (DRCL)

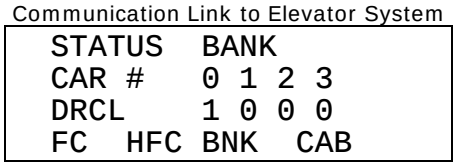

Figure 47

Safety Circuit complete (K29)

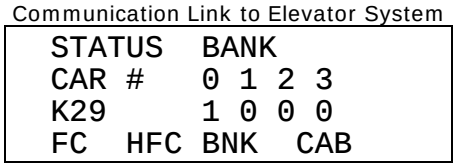

Figure 48

Car in Leveling zone (LVLZ)

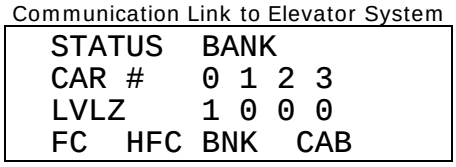

Figure 49

Cars on Independent Service (INDS)

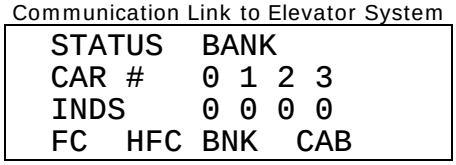

Figure 50

Cars on Fire Service (FIRE)

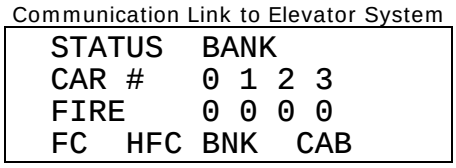

Figure 51

Anti-Stall Timer (AST)

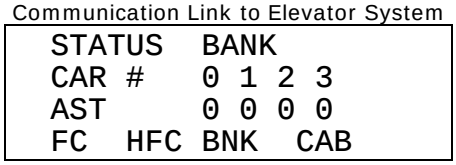

Figure 52

Oil Temperature Problem (TEMP)

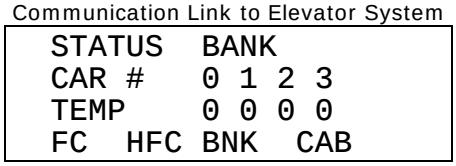

Figure 53

Note: Bank status may only be viewed if the car being diagnosed is part of a group operation. If the car is in simplex operation a message of SINGLE CAR SYS will appear within the Communication Link to Elevator System window. Refer to Figure #54.

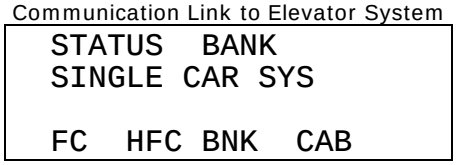

Figure 54

Signal:	Description:
AST	Anti-stall timer
AVAS	Available for service
AVP	Advanced landing position
COMP	Communication status
DISP	Dispatch controller
DRCL	Door closed
FC1P	Floor communications link #1 problem
FCMS	Master controller
FIRE	Fire service
INDS	Independent service
INSV	In service
K29	Safety circuit
LVLZ	Leveling zone
TEMP	Oil-temperature problem
UPSV	Car servicing call in UP direction
UPTR	Car traveling in UP direction

Table 1

- CAB:

  The CAB function of the Status mode for the MPH-I module presents to the user the ability to view various input, internal, and error signals within the MPH-I elevator controller system. The signals referred to above are displayed on the Communication Link to Elevator System window in groups of two. Refer to Figure #55. In order to progress through all of the signals within the MPH-I elevator system the user need to utilize the Previous and Next keys found within the tool screen. The key selections needed to enter into the CAB function of the Status mode are: Status and F4. A table of the CAB status signals with their associated description and value definition can be seen in Table #2. The different signals found within MPH-I elevator controller system are described briefly as follows in Figure #55 through #74:

  Input: Front door open push button (KDOB).
  Input: Front door close push button (KDCB).

Communication Link to Elevator System

```
STATUS   CAB
KDOB     00
KDCB     00
FC   HFC BNK   CAB
```

Figure 55

Input: Phase II fire service switch HOLD position (KHOLD).
Input: Phase II fire service switch ON position (KFEMCM).

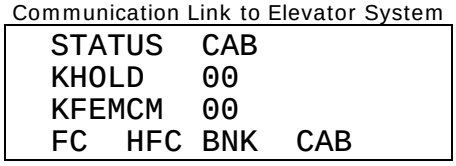

Figure 56

Input: Fire call cancel push button (KFCR).
Input: Front door safety edge(KSTE).

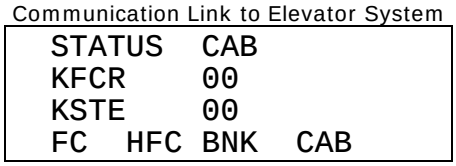

Figure 57

Input: Front door open limit (KDOL).
Input: Front door close limit(KDCL).

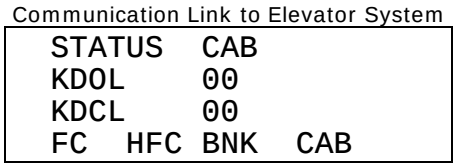

Figure 58

Internal Signal: Front door completely closed (DRCLS).
Internal Signal: Rear door completely closed (RDRCLS).

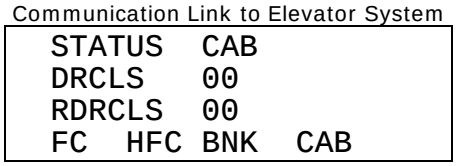

Figure 59

Input: Handicap operation push button (KHCS).
Input: Hospital emergency mode (KHEMO).

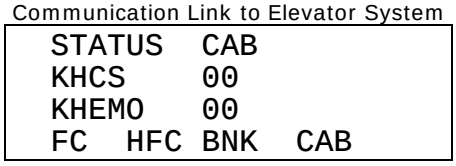

Figure 60

Input: High Speed Down Direction Operation (HD).
Input: High Speed Up Direction Operation (HU).

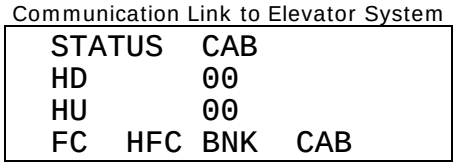

Figure 61

Input: Rear Door Open Push Button (KDOBR).
Input: Rear Door Close Push Button (KDCBR).

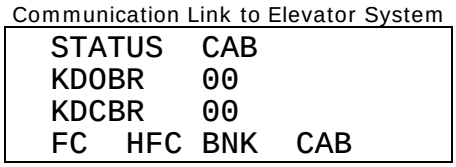

Figure 62

Input: Rear Safety Ray (KSTER).
Input: Rear Door Open Limit (KDOLR).

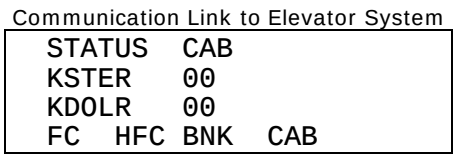

Figure 63

Input: Rear Door Closed Limit (KDCLR).
Input: Safety Ray Cutout (KTSA).

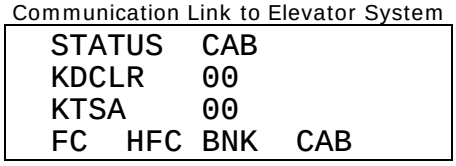

Figure 64

Internal Signal: Car on Block Operation (BLOCK).
Internal Signal: Car performing a Dummy Run (DMYRUN).

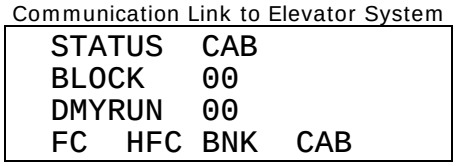

Figure 65

Internal Signal: Car performing high speed run (CARRUN).
Internal Signal: Ready to move state (RDYMVE).

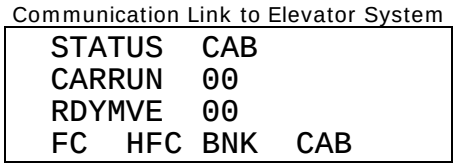

Figure 66

Internal Signal: Car call registered (CCFLG).
Internal Signal: Hall call registered (CORFLG).

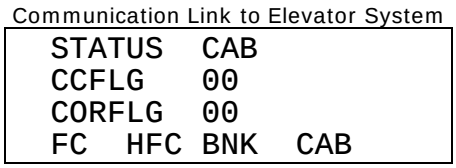

Figure 67

Internal Signal: Front opening car is running to (TARGET).
Internal Signal: Dispatch failure timer (457T).

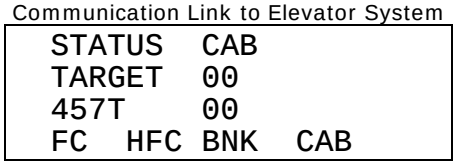

Figure 68

Internal Signal: Rear opening car is running to (TARGFR).
Internal Signal: Car lost in hoistway (LOST).

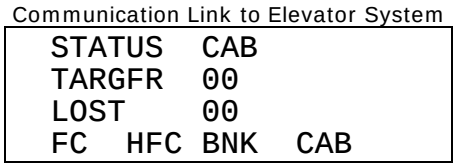

Figure 69

Internal Signal: Non-Volatile RAM condition (NVRMBD).
Internal Signal: 8256 MUART Initialization count (MUIZ).

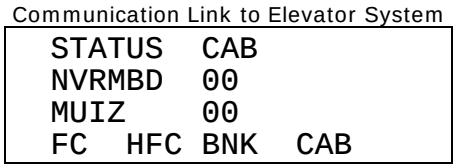

Figure 70

Internal Signal: CPU reset count (RESET).
Internal Signal: FCB communication trouble count (FCTRB).

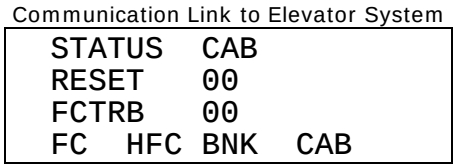

Figure 71

Internal Signal: HFC communication trouble count (HFCTRB).
Internal Signal: Timer trouble count (TMRTRB).

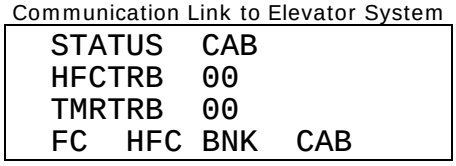

Figure 72

Internal Signal: Failed bid number (FBID).
Internal Signal: Failed bid count (FBIDCT).

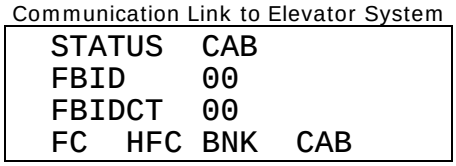

Figure 73

Internal Signal: Communications trouble count (COMTRB).

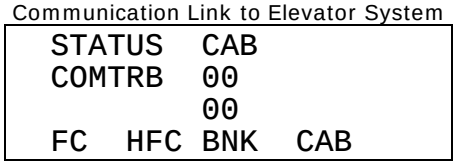

Figure 74

Signal Code:	Car Status Diagnostic System:	States:
457T	Dispatch Failure Timer	1 = OK, 0 = BAD
BLOCK	Block Operation	1 = Active, 0 = Not-Active
CARRUN	Car Running	1 = Active, 0 = Not-Active
CCFLG	Car Call Flag	1 = Active, 0 = Not-Active
COMTRB	Communications Trouble	1 = Active, 0 = Not-Active
CORFLG	Hall Call Flag	1 = Active, 0 = Not-Active
DMYRUN	Dummy Run	1 = Active, 0 = Not-Active
DRCLS	Front Door Closed Signal	1 = Active, 0 = Not-Active
FBID	Failed Bid ID	Number Of Failed Bid
FBIDCT	Failed Bid Count	00 To FF
FCTRB	FCB Trouble Count	00 To FF
HD	High Speed Down	1 = Active, 0 = Not-Active
HFCTRB	HFCB Trouble Count	00 To FF
HU	High Speed Up	1 = Active, 0 = Not-Active
KDCB	Front Door Close Button	1 = Active, 0 = Not-Active
KDCBR	Rear Door Close Button	1 = Active, 0 = Not-Active
KDCL	Front Door Close Limit	1 = Door Closed
KDCLR	Rear Door Close Limit	1 = Door Closed
KDOB	Front Door Open Button	1 = Active, 0 = Not-Active
KDOBR	Rear Door Open Button	1 = Active, 0 = Not-Active
KDOL	Front Door Open Limit	1 = Door Opened
KDOLR	Rear Door Open Limit	1 = Door Opened
KFCR	Fire Service Call Cancel	1 = Active, 0 = Not-Active
KFEMCM	Phase II Fire Service	1 = Active, 0 = Not-Active
KHCS	ADA: Handicap Service	1 = Active, 0 = Not-Active
KHEMO	Hospital Emergency Service	1 = Active, 0 = Not-Active
KHOLD	Phase II Door Hold Switch	1 = Active, 0 = Not-Active
KSTE	Front Door Safety Edge	1 = Active, 0 = Not-Active
KSTER	Rear Door Safety Edge	1 = Active, 0 = Not-Active
KTSA	Safety Ray Cutout	1 = Active, 0 = Not-Active
LOST	Car Lost Signal	1 = Active, 0 = Not-Active
MUIZ	8256 MUART Init. Count	00 To FF
NVRMBD	Non-Volatile Ram Condition	1 = OK, 0 = BAD
RDRCLS	Rear Door Closed Signal	1 = Active, 0 = Not-Active
RDYMVE	Car Ready To Move	1 = Active, 0 = Not-Active
RESET	Micro Reset Count	00 To FF
TARGET	Target Floor	Floor Number (00 to 07)
TARGFR	Rear Target Floor	Floor Number (00 to 07)
TMRTRB	Timer Trouble Count	00 To FF

Table 2

- Display Mode:

The display mode is used to show the user the operating values of a specific location within the elevator system. Specifically the Display mode of the tool allows the user to see these values within the elevator's memory, FCB I/O ports HFCB I/O ports, and the elevator's high speed run counter. To enter the tool into Display mode, the user needs to select the button labeled Display or select Display from the mode keys menu. A keyboard shortcut of "Ctrl + D" will also enter the tool into Display Mode. Within the MPH-I elevator system Display mode has four functions associated with it. Refer to Figure #75. These functions are: MEM, FC, HFC, and STP. A brief description of these functions within Display mode are described as follows.

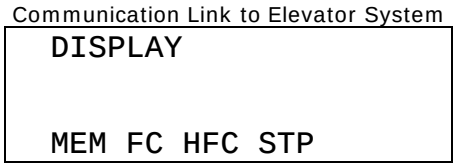

Figure 75

- MEM:

The memory function of the MPH-I diagnostic tool allows the user to view specific memory addresses within the elevator system. To enter into the memory function, the user would first select the button Status and then F1. Refer to Figure #76. After the MEM function is invoked, the user must enter a 4 byte hex address for the memory location desired to be viewed. Refer to figure #77. When this hex address has been completed the Enter push button is pressed to send it to the elevator system for a response to the tool. Refer to Figure #78. To move to the previous or next memory address the buttons labeled Previous and Next may be used respectively.

Select: Status and F1.

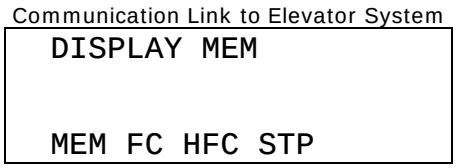

Figure 76

Select: 0008 (Memory Address).

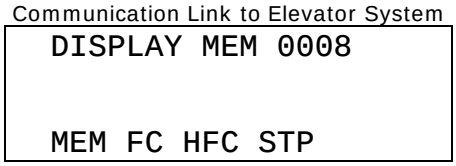

Figure 77

Select: Enter.

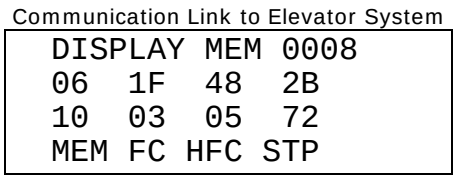

Figure 78

- FC:

An I/O state of a floor controller board may be viewed using the FC function of the Display mode. Refer to Figure #79. When the FC function is selected the user must enter the number of the FC board they desire to look at. When the board number is entered and the Enter key is selected the elevator will respond showing the twelve I/O bits of the FCB board. Refer to Figure #80 and #81. Please review the FCB board I/O chart in Appendix B for specific information on the I/O's for each FCB board.

Select: Display and F2.

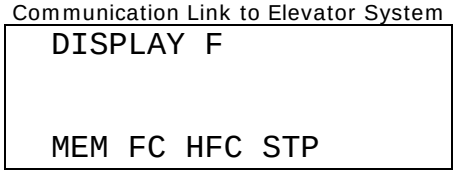

Figure 79

Select: 000 (FCB Board Number).

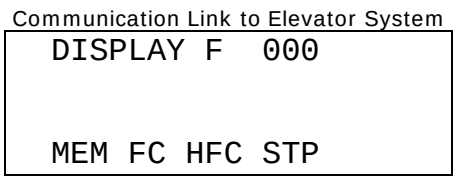

Figure 80

Select: Enter.

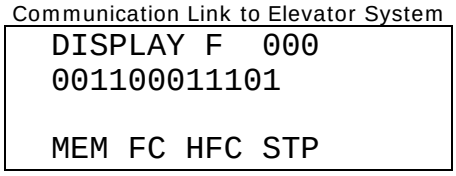

Figure 81

- HFC:

The Hoistway Floor Controller Boards (HFCB's) have I/O ports contained on them that have states that can be viewed through the Display mode of the tool. The function used within the Display mode of the tool is called HFC. The HFC function returns the twelve bit I/O port state for the HFCB board chosen by the user. At any time the user may proceed to the previous or next HFCB board in the system by selecting the buttons titled Previous and Next. Initially after the HFC function is chosen the user must select an HFCB board number and then Enter it into the tool. Refer to Figures #82 through #84. All I/O information displayed within the HFC function is continuously updated through the tool's communication protocol. Appendix C shows the HFCB board I/O's for the MPH-I.

Select: Display and F3.

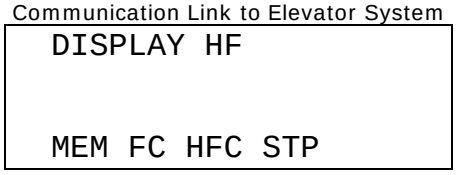

Figure 82

Select: 001 (HFCB Board Number).

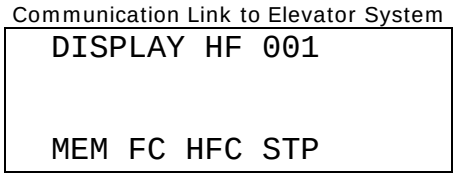

Figure 83

Select: Enter.

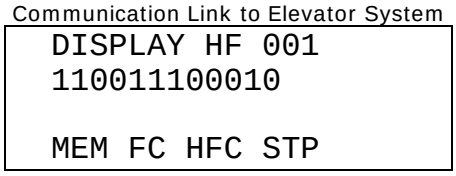

Figure 84

- STP:

  Every time the elevator enters into a high speed run, the Stop Counter function found within the Display mode of the tool increments in value. Refer to Figure #85. This value is a registry of the number of times the elevator has entered into a high speed run within its lifetime. Like an odometer on a car this number can not be reset, but when it reaches 99999 the counter will roll over to all 0's.

  Select: Display and F4.

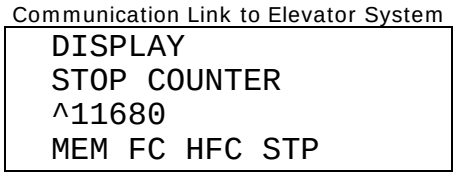

Figure 85

- Profile Mode:

  The Profile mode in the MPH-I elevator system shows features of the elevator system that are job specific. These features that the profile mode allows the user to view are the floors that are enabled, contract features that are enabled, and security access codes for a set of floors. To enter into Profile mode, the user would do one of the following three things: 1) Select the menu item Profile under the Mode Keys menu, 2) Select the button labeled Profile in the control screen, 3) Use the keyboard shortcut Ctrl + P. Once in Profile mode three functions are displayed to the user: ENA, FET, BAC. Refer to Figure #86. Select one of the Function keys to call up one of these functions.

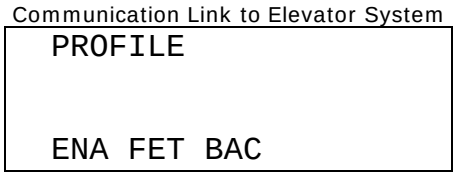

Figure 86

- ENA:

The enables mode allows the user to view which floors are active or enabled in the elevator system being diagnosed. An enabled floor is represented by the numeric character “1”, while a disabled floor is represented by a “-“. Refer to Figure #87 and #88. As a default the front openings for landings 0 through 15 are displayed first. To view the Rear openings, the button labeled Rear must be selected.

To view front landings that are enabled.
Select: Profile and F1.

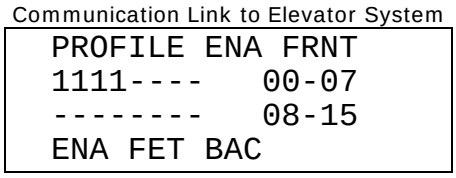

Figure 87

To view rear landings that are enabled.
Select: Profile and F1 and Rear.

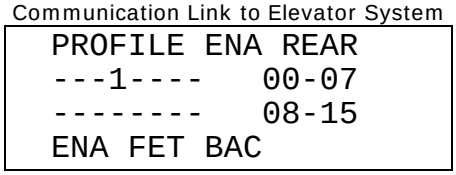

Figure 88

- FET:

A number of elevator features are programmed at the factory. To view these factory programmed features and check their status the user should select the FET function. The features that can be present in this function are:

Feature:	Description:
BACS	Button Access Security
CLM	Car Lantern Module
EMP	Emergency Power
FEM	Fireman’s Emergency Operation
HE	Hospital Emergency
HHPI	Hoistway Horizontal Position Indicator
HLM	Hoistway Lantern Module
HPI	Horizontal Position Indicator
INDS	Independent Service
PARK	Parking Feature
STIP	Status Panel

Table 3

Any feature shown within the FET function of the tool, is a feature the elevator is currently programmed to have. The value shown beside the feature name shows the user the current state of that particular feature. Refer to Figure #89. The Next and Previous buttons may be used to show any additional features the elevator may have. Four feature are displayed at a time.

To get into FET mode:
Select: Profile and F2

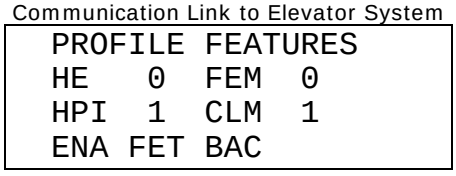

Figure 89

- BAC:

The MPH-I elevator controller has the ability of using security access codes to allow access to a car call. When the elevator's security access code is enabled the elevator operator must punch in his code with the car call buttons of the elevator. The BAC function of the Profile mode allows the user to view the access codes for the floors contained within the elevator. To enter into the BAC function of the Profile mode, the user needs to select Profile and then F3. Refer to Figure #90.

To get into the BAC function:
Select: Profile and F3

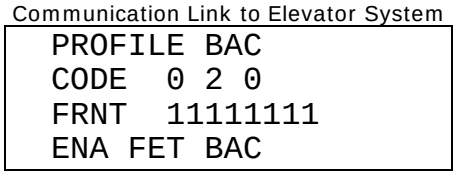

Figure 90

- Active Mode:

If Hospital Emergency operation (HEM) programmed into the Job EPROMS of the MPH-I elevator system, it can be activated through the MPH-I diagnostic tool using the HEM function within Active Mode. When Hospital Emergency Service is programmed into the elevator system, a state of active or inactive will appear with the Communication Link to Elevator System window. Any time an elevator is not programmed with Hospital Emergency Service a state of Unavailable will appear when the HEM function is selected. To enter into Active mode the user would select the menu item Active found under Mode Keys, use the push button labeled Active, or use the keyboard accelerator Ctrl + A. Either

one of these methods will place the tool into active mode. Refer to Figure #91 through #94.

To enter into Active mode:
Select: Active

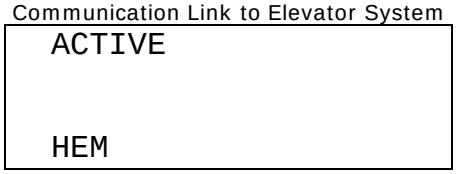

Figure 91

To toggle the state of Hospital Emergency Service between Activated and Inactive
Select: Active and F1

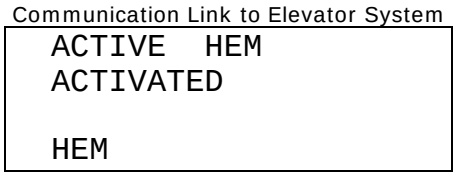

Figure 92

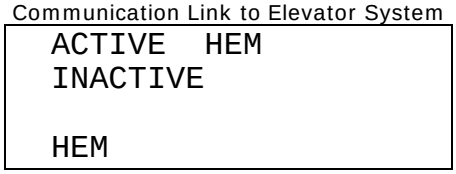

Figure 93

If Hospital Emergency Service can't be Activated the communications link window will appear with the label UNAVAILABLE.

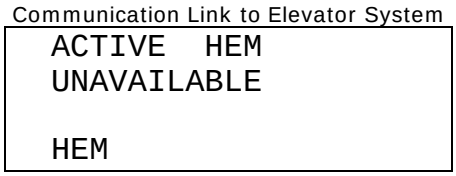

Figure 94

- Test Mode:

The Test mode can be used to test the functionality of PI's, Hall Lanterns, FCB Board operations, and HFCB Board operation. To enter into Test mode the elevator must be on Hand operation or inspection. Refer to Figure #95. Once the car is on inspection these tests can be performed. For more information on the FCB and HFCB tests please see

Appendix B and C. Test mode can be entered by selecting Test from the Mode Keys menu, selecting the Test push button, or using the Ctrl + T accelerator. The different functions located within the Test mode are described as follows:

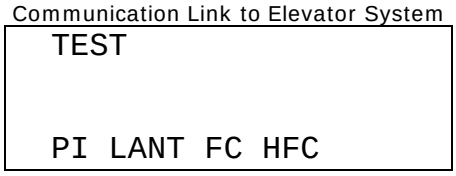

Figure 95

- PI:

  The PI function of the test mode allows the user to test the functionality of the horizontal and digital PI's. Once the PI function is entered, the user needs to enter in the floor number for the PI location desired to be tested. After the floor location is entered, the communication link will update the screen to show the item is activated. Refer to Figures #96 through #97. When an item is activated, the user can then go to the device and check its condition.

  To perform a PI test:

  Select: TEST and F1

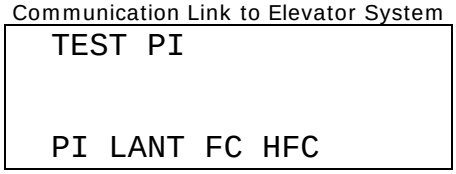

Figure 96

  Select: 02(Floor Number) and Enter

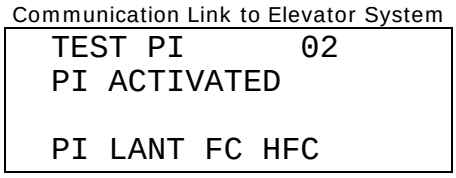

Figure 97

- LANT:

  LANT test, of the test mode, allows the user to determine the functionality of the hall lanterns of the MPH-I elevator system. When the user implements the LANT function of the test mode and then enters a landing number, the Hall lantern on that landing will light. Refer to Figures #98 through #101. The user has the ability to choose which lantern, up or Down direction, to light by selecting the HC Up or HC Down call button.

Default: Up Lantern test:
Select: TEST and F2

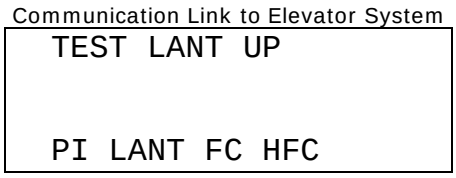

Figure 98

Select: 01(Floor Number) and Enter

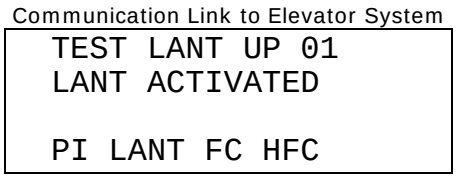

Figure 99

To perform a Down Lantern test
Select: TEST and F2

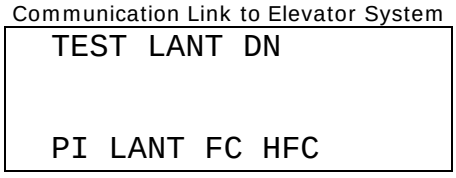

Figure 100

Select: 02(Floor Number) and Enter

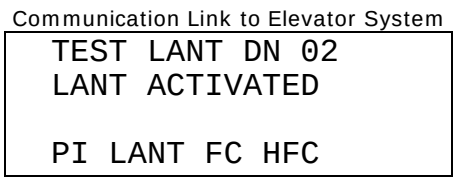

Figure 101

- FC:

By using the FC function of the Test mode, the user can send signals to the different output ports of the Car FCB boards. Refer to Figures #102 and #103. A list of these output signals can be found in Appendix B. The possible FCB boards within a system are numbered as the following: 01, 02, 03, 04, 05, 06, 07, 08, 09, and 70. There are 12 output signals found on each FCB board. FCB board number 70 is for the position indicators.

To perform a FCB test:
Select: TEST and F3

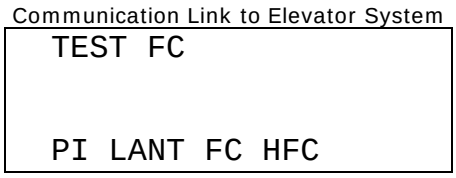

Figure 102

Select: 01(Board Number) and 04(Port Number) and Enter
This sends a signal to the Door Open Push Button for the Front Door.

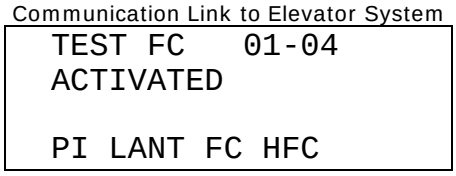

Figure 103

- HFC:

A user can send signals to the different output ports of the Hoistway FCB boards by selecting the HFC function found within the Test mode of the tool. A list of these output signals can be found in Appendix C. The possible HFCB boards within a system are numbered as the following: 01, 02, 03, 04, 05, 06, 07, 08, 11, 12, 13, 14, 15, 16, 17, 18, 70, 71, 72, 73, 78, 79, and 7E. There are 12 output signals found on each HFCB board. HFCB board numbers 70 through 73 are for the position indicators. Refer to Figures #104 and #105.

To perform a HFCB test:
Select: TEST and F4

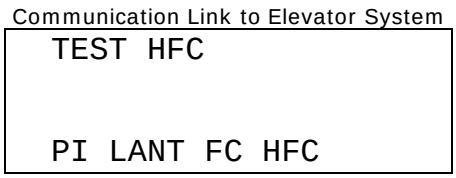

Figure 104

Select: 03(Board Number) and 05(Port Number) and Enter
This is the 4th Landing Down Push Button.

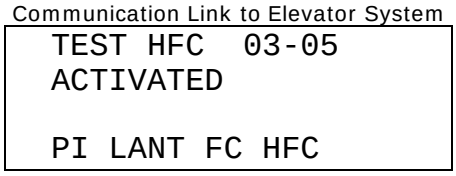

Figure 105

MPH-I Note: The MPH-I elevator controller system does not transmit 5's through the communications port when it is looking for a tool to Logon. Therefore, whenever connected, the reason for a tool not responding when a mode or function is selected could be that the user has been logged off of the elevator system. To verify that this is so, select the Logon Mode and proceed if the communications link to elevator system window displays LOGON. If no response is received by the tool and there is no response to the Logon command the user then should check all connections to the elevator system and the functionality of the elevator controller board (MPH).

MPH-II (Software Revision 00-05):

- CALL Mode:

  Within the MPH-II diagnostic system calls may be entered and displayed through the tool. When the CALL mode is initiated through the tool, the screen will update informing the user as to what mode the tool is in and the available functions. Refer to Figure #106.

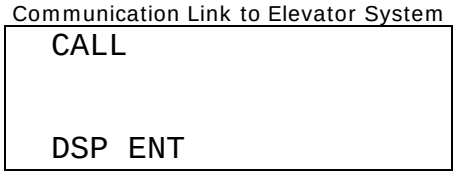

Figure 106

- DSP:

  Used to display all registered car and hall calls. A “1” means a call is registered for that landing. “-“ means no call is registered for that landing. Figures numbered #107 through #112 show the different means to display car and hall calls.

  Default: Front Car Calls:
  Select: Calls and F1

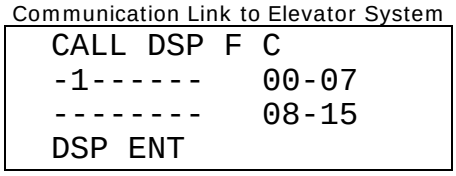

Figure 107

  Rear Car Calls:
  Select: Calls and F1 and Rear

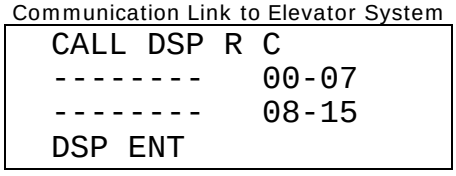

Figure 108

Front Up Hall Calls:
Select: Calls and F1 and HC Up

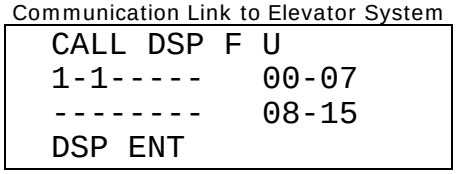

Figure 109

Front Down Hall Calls:
Select: Calls and F1 and HC Down

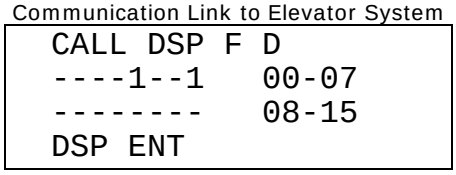

Figure 110

Rear Up Hall Calls:
Select: Calls and F1 and HC Up and REAR

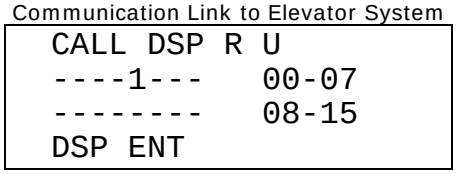

Figure 111

Rear Down Hall Calls:
Select: Calls and F1 and HC Down and REAR

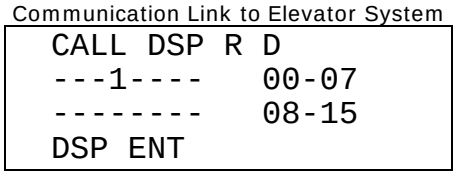

Figure 112

- ENT:

  Used to display all registered car and hall calls. Figures #113 through #118 depict the different ways to register a call through the tool. Once a landing is entered the user

can proceed to register a call at the previous or next landing by choosing the Previous or Next buttons respectively and then selecting Enter. When a call is entered the screen should update with the phrase “CALL ENTERED”.

Default: Front Car Calls:
Select: Calls and F2 and 01(Floor Number) and Enter

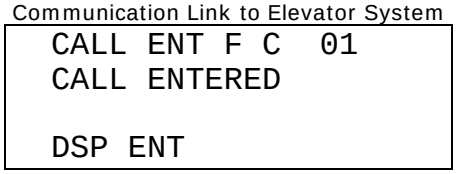

Figure 113

Rear Car Calls:
Select: Calls and F2 and REAR and 01(Floor Number) and Enter

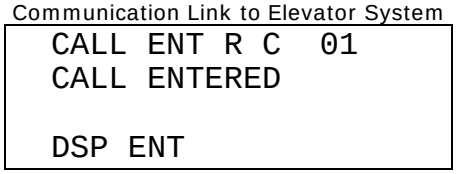

Figure 114

Front Up Hall Calls:
Select: Calls and F2 and HC Up and 01(Floor Number) and Enter

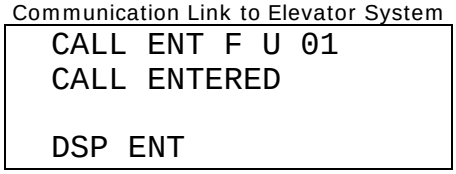

Figure 115

Front Down Hall Calls:
Select: Calls and F2 and HC Down and 01(Floor Number) and Enter

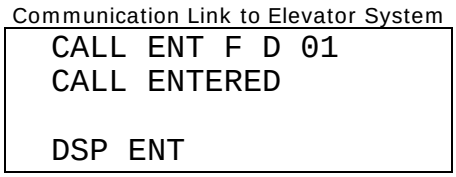

Figure 116

Rear Up Hall Calls:

Select: Calls and F2 and HC Up and REAR and 01(Floor Number) and Enter

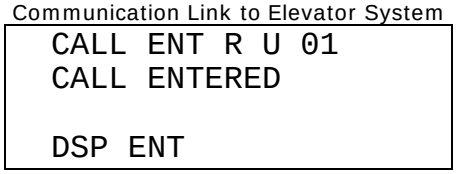

Figure 117

Rear Down Hall Calls:

Select: Calls and F2 and HC Down and REAR and 01(Floor Number) and Enter

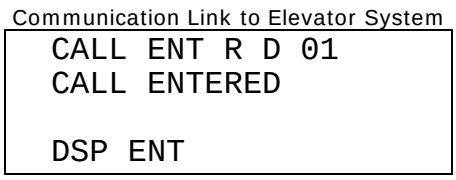

Figure 118

- Status Mode:

To get information on the status of communication between the MHC processor board and other components within the MPH-II elevator system can be viewed using the Status Mode. The Status Mode gives the user information as to communication problems between the controller and the FCB's located throughout the system. The ability to look at specific I/O and internal signals between individual cars and within a single car is given in the status mode. To enter the tool into status mode the user needs to select the button labeled Status or select Status from the mode keys menu. A keyboard shortcut of "Ctrl + S" will also enter the tool into Status Mode. Within the MPH-II elevator system Status has four functions associated with it. Refer to Figure #119. These functions are: FC, HFC, BNK, and CAB. A brief description of these functions within Status mode are described as follows.

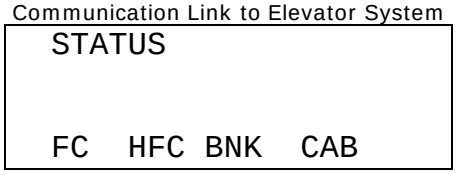

Figure 119

- FC:

All floor controller boards(FCB's) are connected to the MPH-II processor by means of a serial link. The FC function displays to the user the status of this serial link to these FCB boards. If no problem exists within the serial link a status of COMM OK will

appear within the communications link window. Otherwise the term, COMM PROBLEM, will appear and the number of the FCB board with the communication problem will be listed. If four boards are listed, the Next button may need to be used to view an additional list of bad boards within the FC serial link. Figures #120 and #121 show when the FCB board communications link is good and when it is bad respectively.

Select: Status and F1

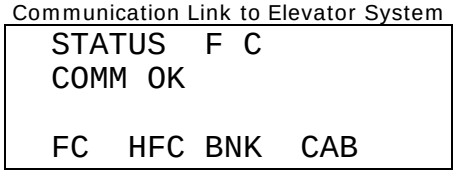

Figure 120

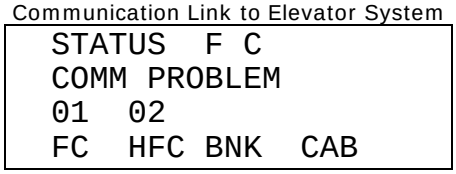

Figure 121

- HFC:

All hoistway floor controller boards(HFCB's) are connected to the MPH-II processor by means of a serial link. The HFC function displays to the user the status of this serial link to these HFCB boards. If no problem exists within the serial link a status of COMM OK will appear within the communications link window. Otherwise the term, COMM PROBLEM, will appear and the number of the HFCB board with the communication problem will be listed. If four boards are listed, the Next button may need to be used to view an additional list of bad boards within the HFC serial link. Figures #122 and #123 depict a state when the communications link to the hoistway Floor Controller Boards are good and bad respectively.

Select: Status and F2

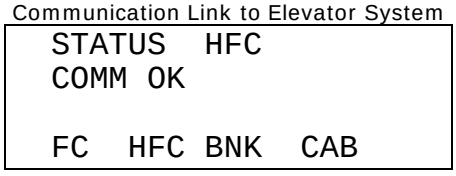

Figure 122

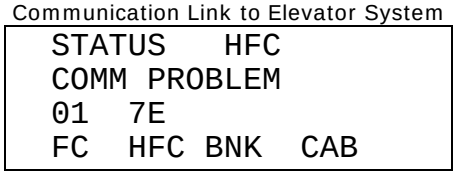

Figure 123

If the car is not a master controller the communications link to elevator system window will appear as in Figure #124.

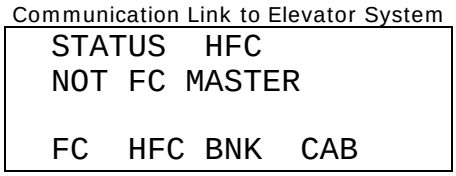

Figure 124

NOTE: The car being diagnosed must be the master controller for the system in order to get the communication status of the HFC communication link. By selecting Status and F3 and then selecting Next twice, the screen should appear as in Figure #125. Figure #125 shows the status of the group or bank signals of which the signal name FCMS is the master controller designation for an MPH-II elevator system. A "1" under a car number means that the car is a master controller for the group. A group of three cars or more can have up to two master controllers.

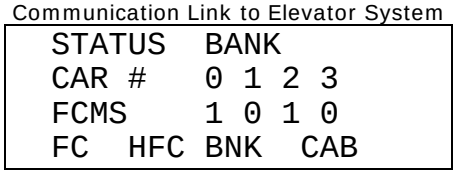

Figure 125

- BNK:

The bank or group status function within the MPH-II elevator system displays several internal signals within the group operation of the elevator system. The Bank status window displays the signal name, car number, and current signal status for the group. Refer to Figure #126. To move forward and backward through the list of bank status signals the Next and Previous buttons may be used respectively. A "1" means the condition is true for the signal name for that car. A "0" means the signal name has a False condition for that car. A table of all the available BNK signals and their description can be found in Table #4.

Group Communication Status (COMP)

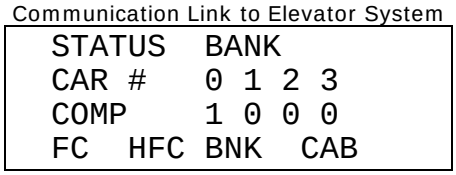

Figure 126

Dispatch Controller (DISP)

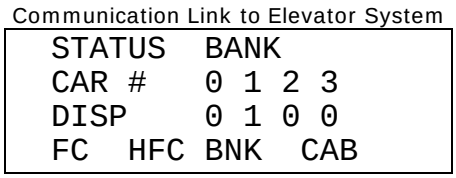

Figure 127

Master Controller (FCMS)

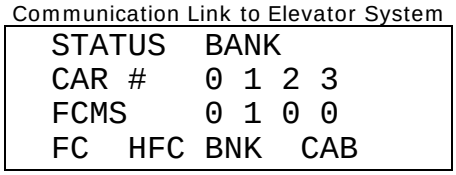

Figure 128

Floor Communication Link(FC) Problem (FC1P)

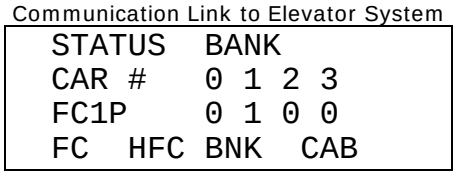

Figure 129

Cars currently in-service (INSV)

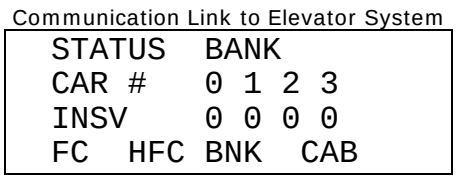

Figure 130

Cars currently available for service (AVAS)

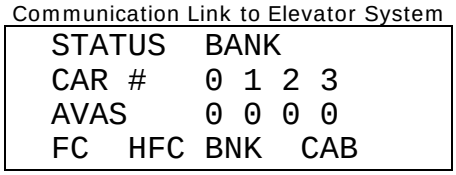

Figure 131

Cars traveling in the Up direction (UPTR)

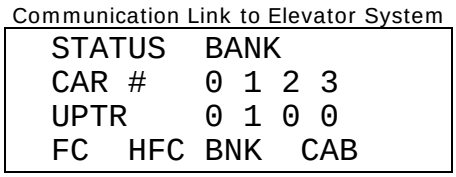

Figure 132

Car currently servicing a call in the Up direction (UPSV)

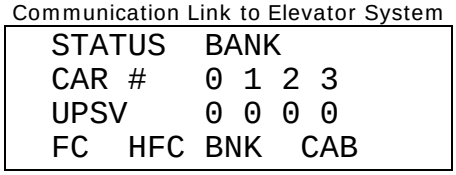

Figure 133

Landing where car will be stopping (AVP)

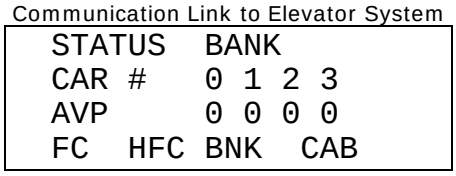

Figure 134

Door is closed or closing (DRCL)

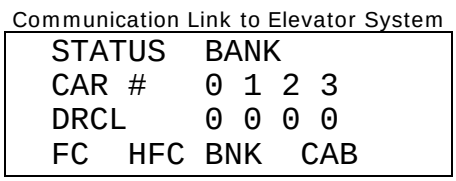

Figure 135

Safety Circuit complete (K29)

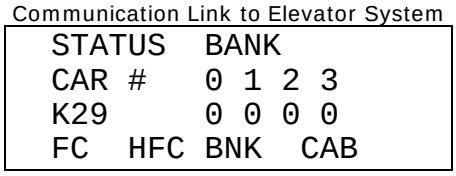

Figure 136

Car in Leveling zone (LVLZ)

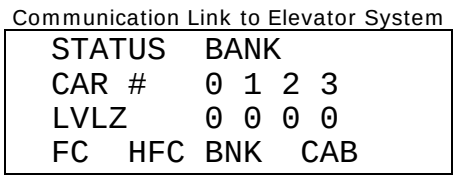

Figure 137

Cars on Independent Service (INDS)

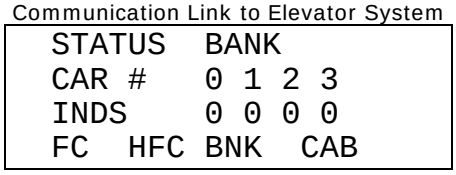

Figure 138

Cars on Fire Service (FIRE)

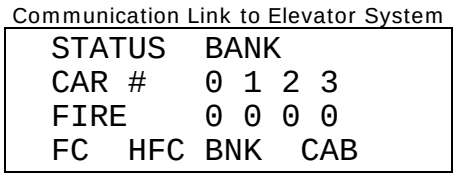

Figure 139

Anti-Stall Timer (AST)

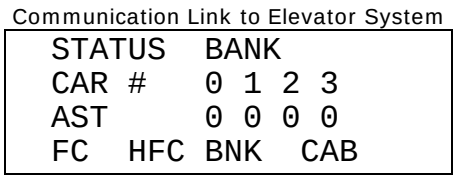

Figure 140

Oil Temperature Problem (TEMP)

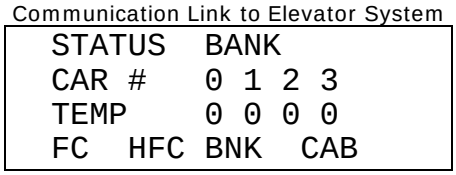

Figure 141

Note: Bank status may only be viewed if the car being diagnosed is part of a group operation. If the car is in simplex operation a message of SINGLE CAR SYS will appear within the Communication Link to Elevator System window. Refer to Figure #142.

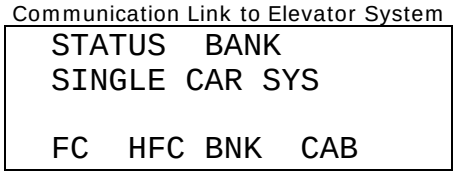

Figure 142

Signal:	Description:
AST	Anti-stall timer
AVAS	Available for service
AVP	Advanced landing position
COMP	Communication status
DISP	Dispatch controller
DRCL	Door closed
FC1P	Floor communications link #1 problem
FCMS	Master controller
FIRE	Fire service
INDS	Independent service
INSV	In service
K29	Safety circuit
LVLZ	Leveling zone
TEMP	Oil-temperature problem
UPSV	Car servicing call in UP direction
UPTR	Car traveling in UP direction

Table 4

- CAB:

The CAB function of the Status mode for the MPH-II module presents to the user the ability to view various input, internal, and error signals within the MPH-II elevator controller system. The signals referred to above are displayed on the Communication Link to Elevator System window in groups of two. Refer to Figure #143. In order to progress through all of the signals within the MPH-II elevator system the user need to utilize the Previous and Next keys found within the tool screen. The key selections needed to enter into the CAB function of the Status mode are: Status and F4. A table of the CAB status signals with their associated description and value definition can be seen in Table #5. The different signals found within MPH-II elevator controller system are described briefly as follows in Figure #143 through #164:

Input: Front door open push button (KDOB).
Input: Front door close push button (KDCB).

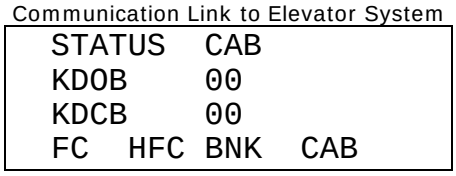

Figure 143

Input: Phase II fire service switch HOLD position (KHOLD).
Input: Phase II fire service switch ON position (KFEMCM).

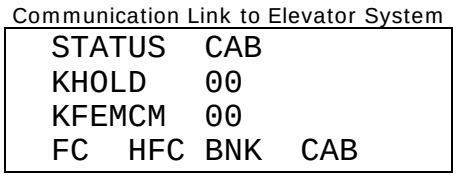

Figure 144

Input: Fire call cancel push button (KFCR).
Input: Front door safety edge(KSTE).

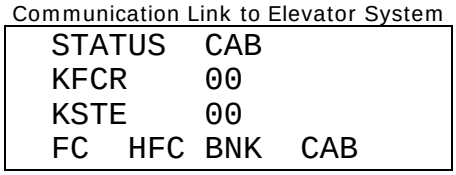

Figure 145

Input: Front door open limit (KDOL).
Input: Front door close limit(KDCL).

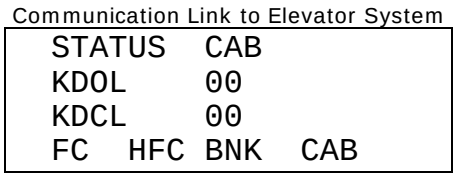

Figure 146

Internal Signal: Front door completely closed (DRCLS).
Internal Signal: Rear door completely closed (RDRCLS).

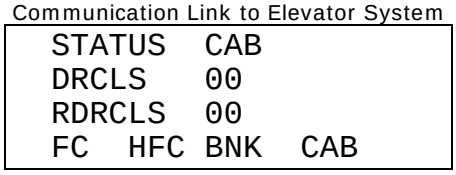

Figure 147

Input: Handicap operation push button (KHCS).
Input: Hospital emergency mode (KHEMO).

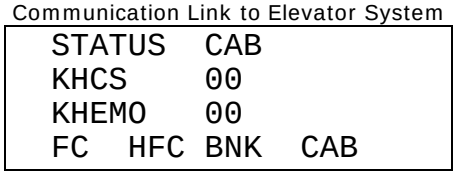

Figure 148

Input: High Speed Down Direction Operation (HD).
Input: High Speed Up Direction Operation (HU).

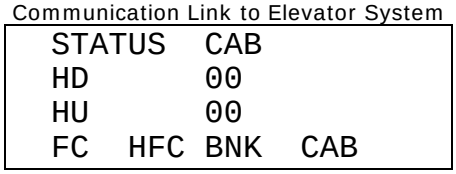

Figure 149

Input: Rear Door Open Push Button (KDOBR).
Input: Rear Door Close Push Button (KDCBR).

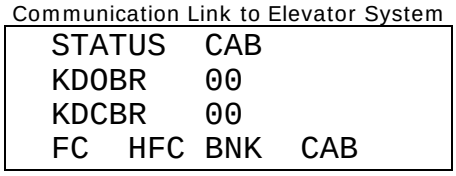

Figure 150

Input: Rear Safety Ray (KSTER).
Input: Rear Door Open Limit (KDOLR).

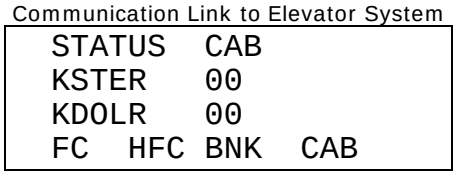

Figure 151

Input: Rear Door Closed Limit (KDCLR).
Input: Safety Ray Cutout (KTSA).

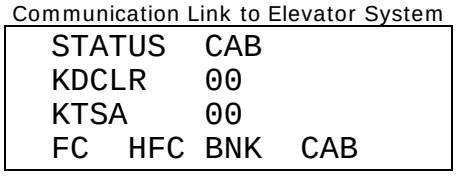

Figure 152

Internal Signal: Car on Block Operation (BLOCK).
Internal Signal: Car performing a Dummy Run (DMYRUN).

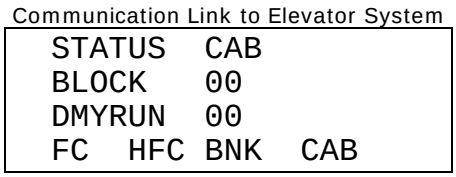

Figure 153

Internal Signal: Car performing high speed run (CARRUN).
Internal Signal: Ready to move state (RDYMVE).

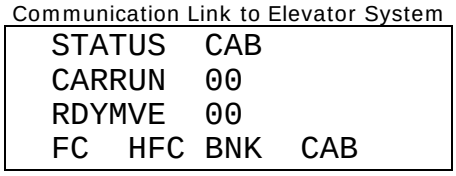

Figure 154

Internal Signal: Car call registered (CCFLG).
Internal Signal: Hall call registered (CORFLG).

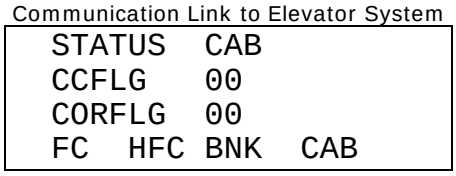

Figure 155

Internal Signal: Front opening car is running to (TARGET).
Internal Signal: Dispatch failure timer (457T).

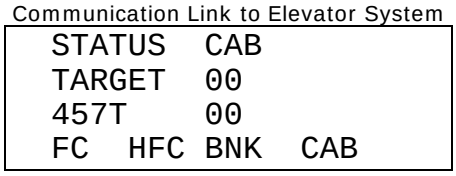

Figure 156

Internal Signal: Rear opening car is running to (TARGFR).
Internal Signal: Car lost in hoistway (LOST).

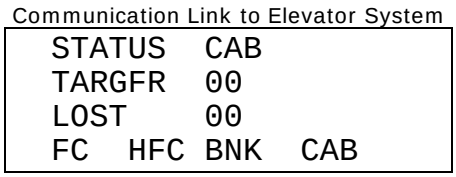

Figure 157

Internal Signal: Non-Volatile RAM condition (NVRMBD).
Internal Signal: 8256 MUART Initialization count (MUIZ).

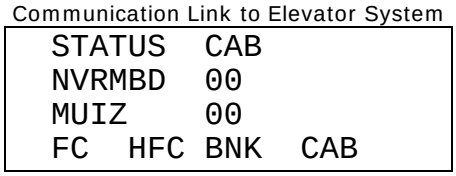

Figure 158

Internal Signal: CPU reset count (RESET).
Internal Signal: FCB communication trouble count (FCTRB).

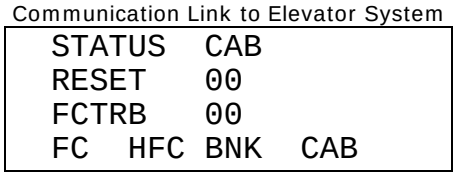

Figure 159

Internal Signal: HFC communication trouble count (HFCTRB).
Internal Signal: Timer trouble count (TMRTRB).

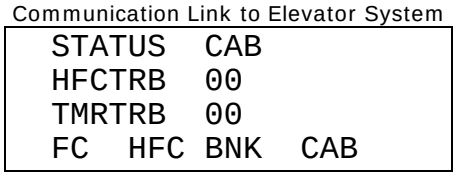

Figure 160

Internal Signal: Failed bid number (FBID).
Internal Signal: Failed bid count (FBIDCT).

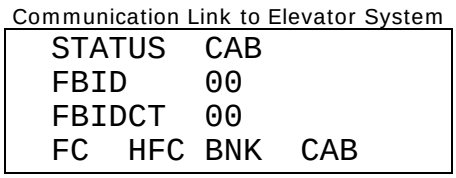

Figure 161

Internal Signal: Communications trouble count (COMTRB).
Internal Signal: Current call being responded to (CALL).

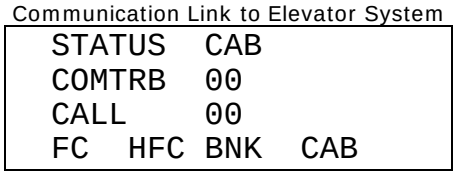

Figure 162

Internal Signal: Car running at decelerated speed (DEC).
Internal Signal: Lantern Up (LU).

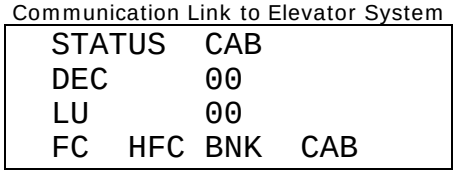

Figure 163

Internal Signal: Up Lantern(LU).

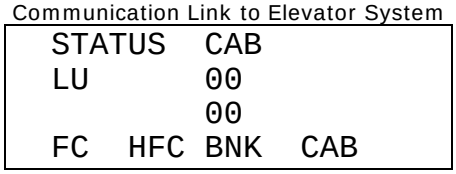

Figure 164

Signal Code:	Car Status Diagnostic System:	States:
457T	Dispatch Failure Timer	1 = OK, 0 = BAD
BLOCK	Block Operation	1 = Active, 0 = Not-Active
CALL	Call Assigned	1 = Active, 0 = Not Active
CARRUN	Car Running	1 = Active, 0 = Not-Active
CCFLG	Car Call Flag	1 = Active, 0 = Not-Active
COMTRB	Communications Trouble	1 = Active, 0 = Not-Active
CORFLG	Hall Call Flag	1 = Active, 0 = Not-Active
DEC	Car running at a decelerated speed	1 = Active, 0 = Not Active
DMYRUN	Dummy Run	1 = Active, 0 = Not-Active
DRCLS	Front Door Closed Signal	1 = Active, 0 = Not-Active
FBID	Failed Bid ID	Number Of Failed Bid
FBIDCT	Failed Bid Count	00 To FF
FCTRB	FCB Trouble Count	00 To FF
HD	High Speed Down	1 = Active, 0 = Not-Active
HFCTRB	HFCB Trouble Count	00 To FF
HU	High Speed Up	1 = Active, 0 = Not-Active
KDCB	Front Door Close Button	1 = Active, 0 = Not-Active
KDCBR	Rear Door Close Button	1 = Active, 0 = Not-Active
KDCL	Front Door Close Limit	1 = Door Closed
KDCLR	Rear Door Close Limit	1 = Door Closed
KDOB	Front Door Open Button	1 = Active, 0 = Not-Active
KDOBR	Rear Door Open Button	1 = Active, 0 = Not-Active
KDOL	Front Door Open Limit	1 = Door Opened
KDOLR	Rear Door Open Limit	1 = Door Opened
KFCR	Fire Service Call Cancel	1 = Active, 0 = Not-Active
KFEMCM	Phase II Fire Service	1 = Active, 0 = Not-Active
KHCS	ADA: Handicap Service	1 = Active, 0 = Not-Active
KHEMO	Hospital Emergency Service	1 = Active, 0 = Not-Active
KHOLD	Phase II Door Hold Switch	1 = Active, 0 = Not-Active
KSTE	Front Door Safety Edge	1 = Active, 0 = Not-Active
KSTER	Rear Door Safety Edge	1 = Active, 0 = Not-Active
KTSA	Safety Ray Cutout	1 = Active, 0 = Not-Active
LD	Down Lantern	1 = Active, 0 = Not Active
LOST	Car Lost Signal	1 = Active, 0 = Not-Active
LU	Up Lantern	1 = Active, 0 = Not Active
MUIZ	8256 MUART Init. Count	00 To FF
NVRMBD	Non-Volatile Ram Condition	1 = OK, 0 = BAD
RDRCLS	Rear Door Closed Signal	1 = Active, 0 = Not-Active
RDYMVE	Car Ready To Move	1 = Active, 0 = Not-Active
RESET	Micro Reset Count	00 To FF
TARGET	Target Floor	Floor Number (00 to 07)
TARGFR	Rear Target Floor	Floor Number (00 to 07)
TMRTRB	Timer Trouble Count	00 To FF

Table 5

- Display Mode:

The display mode is used to show the user the operating values of a specific location within the elevator system. Specifically the Display mode of the tool allows the user to see these values within the elevator's memory, FCB I/O ports HFCB I/O ports, and the elevator's high speed run counter. To enter the tool into Display mode, the user needs to select the button labeled Display or select Display from the mode keys menu. A keyboard shortcut of "Ctrl + D" will also enter the tool into Display Mode. Within the MPH-II elevator system Display mode has four functions associated with it. Refer to Figure #165. These functions are: MEM, FC, HFC, and STP. A brief description of these functions within Display mode are described as follows.

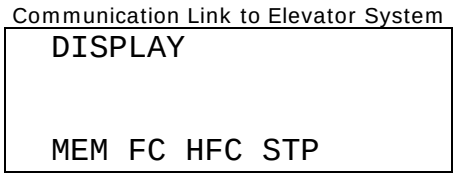

Figure 165

- MEM:

The memory function of the MPH-II diagnostic tool allows the user to view specific memory addresses within the elevator system. To enter into the memory function, the user would first select the button Status and then F1. Refer to Figure #166. After the MEM function is invoked, the user must enter a 4 byte hex address for the memory location desired to be viewed. Refer to figure #167. When this hex address has been completed the Enter push button is pressed to send it to the elevator system for a response to the tool. Refer to Figure #168. To move to the previous or next memory address the buttons labeled Previous and Next may be used respectively.

Select: Status and F1.

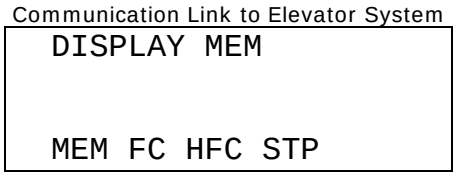

Figure 166

Select: 0008 (Memory Address).

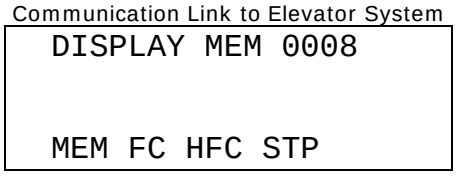

Figure 167

Select: Enter.

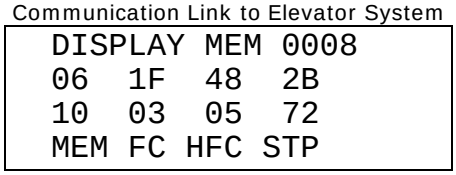

Figure 168

- FC:

An I/O state of a floor controller board may be viewed using the FC function of the Display mode. Refer to Figure #169. When the FC function is selected the user must enter the number of the FC board they desire to look at. When the board number is entered and the Enter key is selected the elevator will respond showing the twelve I/O bits of the FCB board. Refer to Figure #170 and #171. Please review the FCB board I/O chart in Appendix D for specific information on the I/O's for each FCB board.

Select: Display and F2.

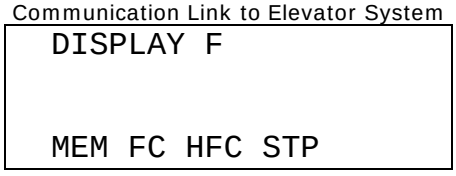

Figure 169

Select: 000 (FCB Board Number).

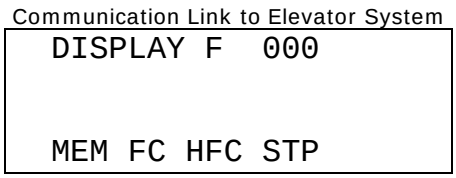

Figure 170

Select: Enter.

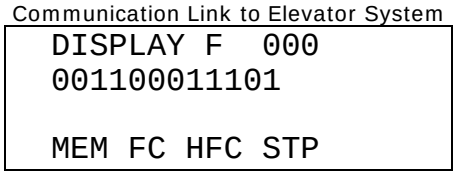

Figure 171

- HFC:

The Hoistway Floor Controller Boards (HFCB's) have I/O ports contained on them that have states that can be viewed through the Display mode of the tool. The function used within the Display mode of the tool is called HFC. The HFC function returns the twelve bit I/O port state for the HFCB board chosen by the user. At any time the user may proceed to the previous or next HFCB board in the system by selecting the buttons titled Previous and Next. Initially after the HFC function is chosen the user must select an HFCB board number and then Enter it into the tool. Refer to Figures #172 through #174. All I/O information displayed within the HFC function is continuously updated through the tool's communication protocol. Appendix E shows the I/O assignments for the HFCB boards for the MPH-II.

Select: Display and F3.

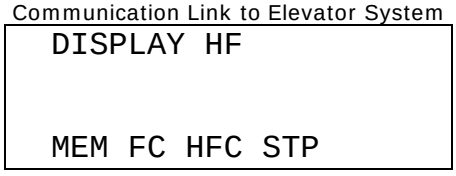

Figure 172

Select: 001 (HFCB Board Number).

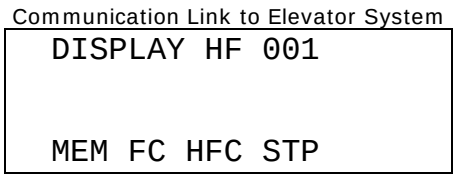

Figure 173

Select: Enter.

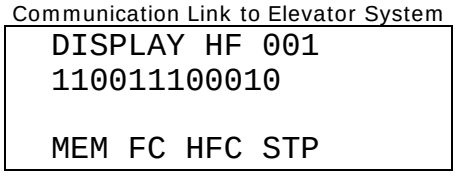

Figure 174

- STP:

  Every time the elevator enters into a high speed run, the Stop Counter function found within the Display mode of the tool increments in value. Refer to Figure #175. This value is a registry of the number of times the elevator has entered into a high speed run within its lifetime. Like an odometer on a car this number can not be reset, but when it reaches 999999 the counter will roll over to all 0's.

  Select: Display and F4.

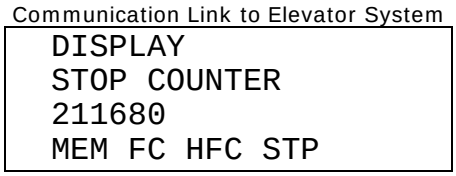

Figure 175

• Profile Mode:

The Profile mode in the MPH-II elevator system shows features of the elevator system that are job specific. These features that the profile mode allows the user to view are the floors that are enabled, contract features that are enabled, security access codes for a set of floors, and field adjustable contract variables. To enter into Profile mode, the user would do one of the following three things: 1) Select the menu item Profile under the Mode Keys menu, 2) Select the button labeled Profile in the control screen, 3) Use the keyboard shortcut Ctrl + P. Once in Profile mode four functions are displayed to the user: ENA, FET, BAC, COE. Refer to Figure #176. Select one of the Function keys to call up one of these functions.

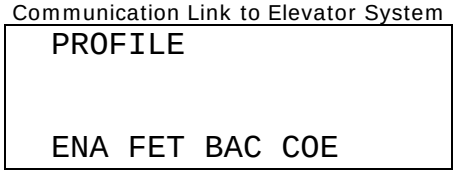

Figure 176

- ENA:

The enables mode allows the user to view which floors are active or enabled in the elevator system being diagnosed. An enabled floor is represented by the numeric character “1”, while a disabled floor is represented by a “-“. Refer to Figure #177 and #178. As a default the front openings for landings 0 through 15 are displayed first. To view the Rear openings, the button labeled Rear must be selected.

To view front landings that are enabled.
Select: Profile and F1.

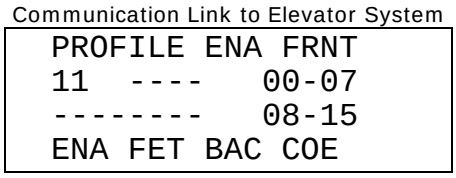

Figure 177

To view rear landings that are enabled.
Select: Profile and F1 and Rear.

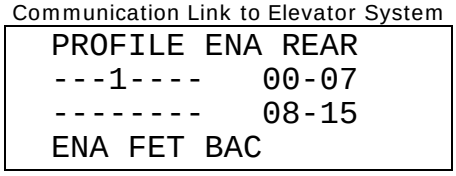

Figure 178

- FET:

A number of elevator features are programmed at the factory. To view these factory programmed features and check their status the user should select the FET function. The features that can be present in this function are:

Feature:	Description:
APE	Anti Power-Outage Entrapment Service
BACS	Button Access Security
CLM	Car Lantern Module
CTLB	Car Homing to Lobby
DPI	Digital Position Indicator
EMP	Emergency Power
FEM	Fireman's Emergency Operation
HDPI	Hoistway Digital Position Indicator
HE	Hospital Emergency
HHPI	Hoistway Horizontal Position Indicator
HLM	Hoistway Lantern Module
HPI	Horizontal Position Indicator
INDS	Independent Service
KEYS	Keyed Cutouts
PARK	Parking Feature
STIP	Status Panel

Table 6

Any feature shown within the FET function of the tool, is a feature the elevator is currently programmed to have. The value shown beside the feature name shows the user the current state of that particular feature. Refer to Figure #179. The Next and Previous buttons may be used to show any additional features the elevator may have. Four feature are displayed at a time.

To get into FET mode:
Select: Profile and F2

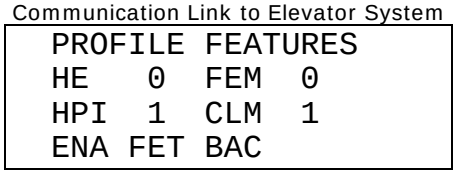

Figure 179

- BAC:

The MPH-II elevator controller has the ability of using security access codes to allow access to a car call. When the elevator's security access code is enabled the elevator operator must punch in his code with the car call buttons of the elevator. The BAC function of the Profile mode allows the user to view and change the access codes for the floors contained within the elevator. To enter into the BAC function of the Profile mode, the user needs to select Profile and then F3. Refer to Figure #180. After the BAC function has been entered, the user needs to select a landing in which to view or

set up the access code. Refer to Figure #180. Front and rear calls can have their security features set by selecting the button labeled Front or Rear before entering a floor value. Refer to Figure #181 AND #182. Once the desired landing is selected and the button access code is displayed, Figure #183, the user is given a new function option of UPDT.

Select: Profile and F3

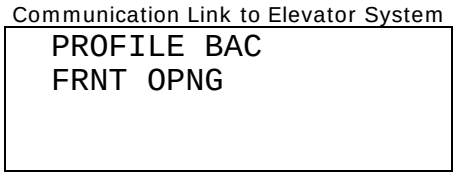

Figure 180

Default: Front Opening

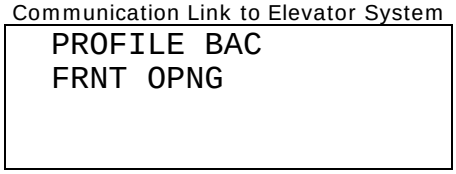

Figure 181

For Rear opening:
Select: Rear

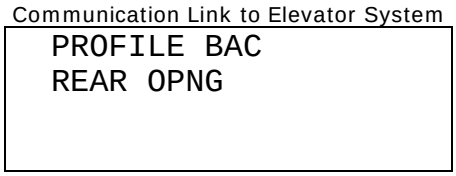

Figure 182

Select: Type in 1 (Landing Number) and Enter

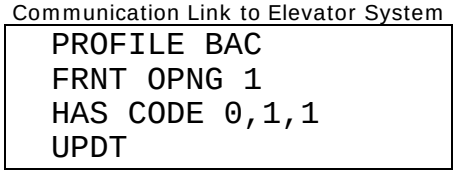

Figure 183

- UPDT:

  The UPDT function within the BAC function of the profile mode, allows the user to change the buttons necessary to log a car call into the elevator when the elevator

is on security operation. Refer to Figure #184. After the UPDT function is selected the user will type in the three numbers corresponding to the car call buttons located within the elevator system. Refer to figure #185. Remember that the highest number possible for an access code digit is the highest available floor within the elevator system. Once the three digits of the access code have been updated the user will select enter to register the new access number into the elevator system.

Select: F1

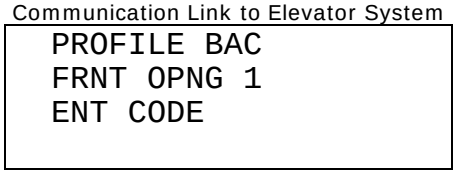

Figure 184

Select: Type in 230 (New 3 digit Access Code) and Enter

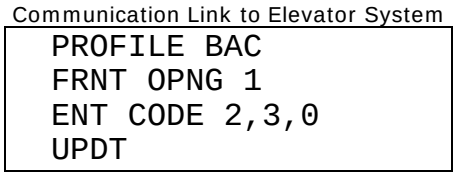

Figure 185

- COE:

The MPH-II gives the user an extra feature that is not found within the MPH-I. This feature is the COE function. The COE function found within the Profile mode gives the user the ability to alter several field adjustable variables. Some of the field adjustable variables that can be found within the COE function are door times, Digital PI programming, and floor lockouts. The user can enter into the COE function by: 1) Selecting Profile and then 2) Selecting COE. Once in COE the Communications Link to Elevator system window will appear as in Figure #186. In the COE function are controls that the user can select to increase the adjustment value, decrease the adjustment value, and save the current adjustment value to RAM and move on to the next contract variable. Refer to Figures #187 through #192. A list of the possible adjustments with their meaning, range, and default value can be viewed in Appendix F.

Select: Profile and F4

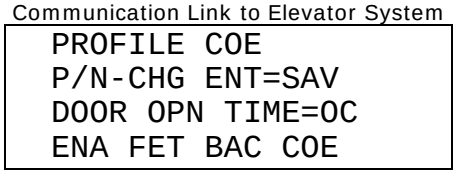

Figure 186

To increase the value of an adjustment
Select: Next

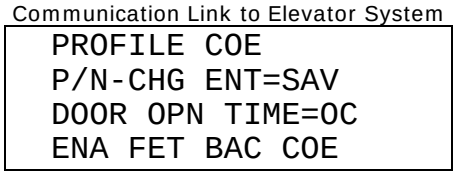

Figure 187

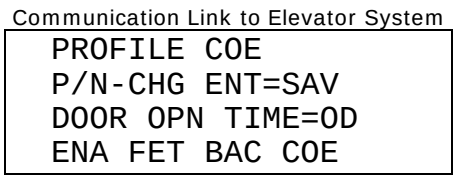

Figure 188

To decrease the value of an adjustment
Select: Previous

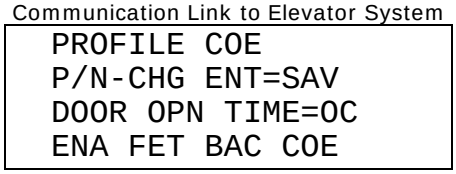

Figure 189

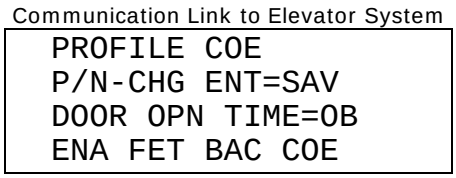

Figure 190

To save current adjustment and proceed to the next one.
Select: Enter

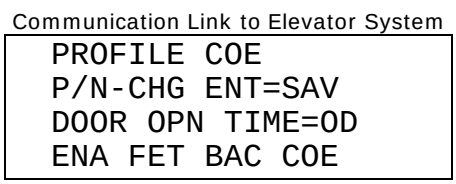

Figure 191

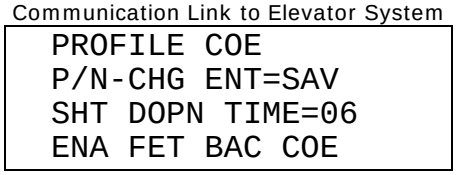

Figure 192

NOTE: To write all values that were updated using the COE function the RESET push button must be depressed on the MHC processor board. When the RESET push button is pressed on the MHC processor board, all values located in the working section of RAM memory are moved to the battery backed section of RAM memory. Once the RESET button is pressed a "5" will appear on the Communications Link to Elevator System window prompting the user to re-initiate a LOGON procedure. Please refer to the LOGON section of this manual for instructions on logging onto a MPH-I or MPH-II elevator system.

- Active Mode:

If Hospital Emergency operation (HEM) programmed into the Job EPROMS of the MPH-II elevator system, it can be activated through the MPH-II diagnostic tool using the HEM function within Active Mode. When Hospital Emergency Service is programmed into the elevator system, a state of active or inactive will appear with the Communication Link to Elevator System window. Any time an elevator is not programmed with Hospital Emergency Service a state of Unavailable will appear when the HEM function is selected. To enter into Active mode the user would select the menu item Active found under Mode Keys, use the push button labeled Active, or use the keyboard accelerator Ctrl + A. Either one of these methods will place the tool into active mode. Refer to Figure #193 through #196.

To enter into Active mode:
Select: Active

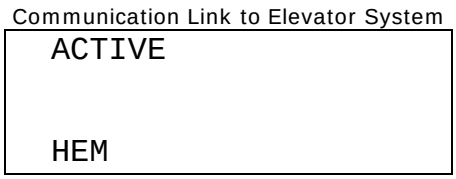

Figure 193

To toggle the state of Hospital Emergency Service between Activated and Inactive
Select: Active and F1

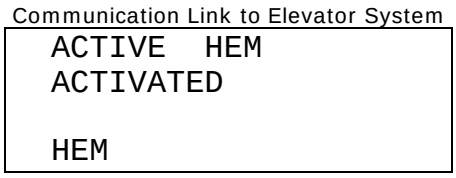

Figure 194

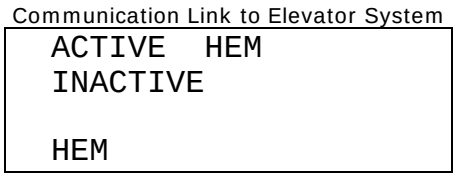

Figure 195

If Hospital Emergency Service can't be Activated the communications link window will appear with the label UNAVAILABLE.

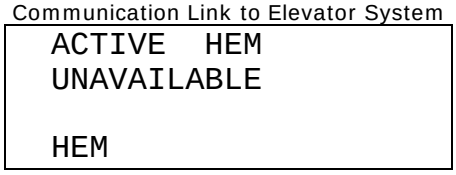

Figure 196

- Test Mode:

The Test mode can be used to test the functionality of PI's, Hall Lanterns, FCB Board operations, and HFCB Board operation. To enter into Test mode the elevator must be on Hand operation or inspection. Refer to Figure #197. Once the car is on inspection these tests can be performed. For more information on the FCB and HFCB tests please see Appendix D and E. Test mode can be entered by selecting Test from the Mode Keys menu, selecting the Test push button, or using the Ctrl + T accelerator. The different functions located within the Test mode are described as follows:

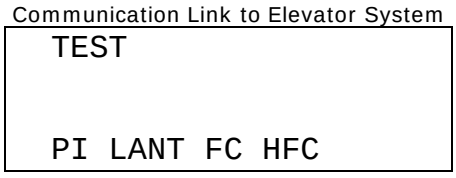

Figure 197

- PI:

The PI function of the test mode allows the user to test the functionality of the horizontal and digital PI's. Once the PI function is entered, the user needs to enter in the floor number for the PI location desired to be tested. After the floor location is entered, the communication link will update the screen to show the item is activated. Refer to Figures #198 through #199. When an item is activated, the user can then go to the device and check its condition.

To perform a PI test:
Select: TEST and F1

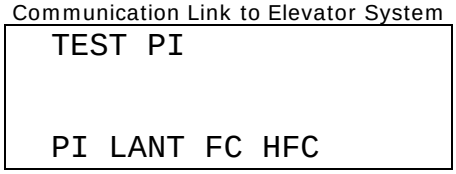

Figure 198

Select: 02(Floor Number) and Enter

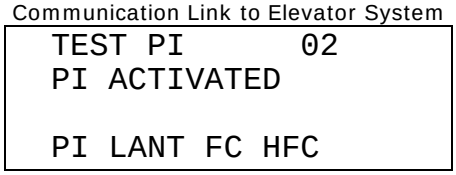

Figure 199

- LANT:

LANT test, of the test mode, allows the user to determine the functionality of the hall lanterns of the MPH-II elevator system. When the user implements the LANT function of the test mode and then enters a landing number, the Hall lantern on that landing will light. Refer to Figures #200 through #203. The user has the ability to choose which lantern, up or Down direction, to light by selecting the HC Up or HC Down call button.

Default: Up Lantern test:
Select: TEST and F2

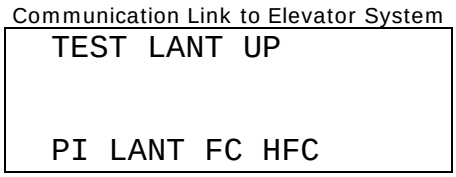

Figure 200

Select: 01(Floor Number) and Enter

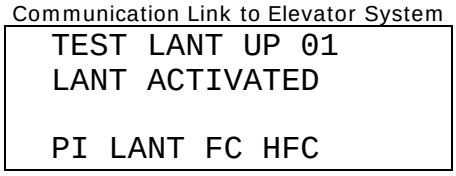

Figure 201

To perform a Down Lantern test
Select: TEST and F2

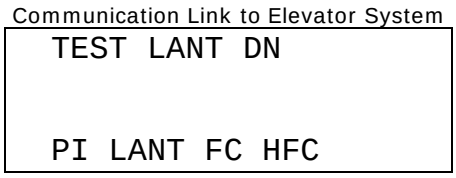

Figure 202

Select: 02(Floor Number) and Enter

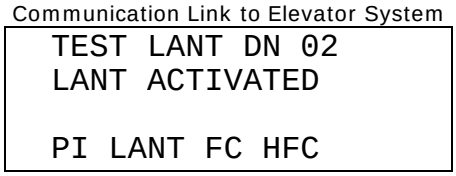

Figure 203

- FC:

By using the FC function of the Test mode, the user can send signals to the different output ports of the Car FCB boards. Refer to Figures #204 and #205. A list of these output signals can be found in Appendix D. The possible FCB boards within a system are numbered as the following: 01, 02, 03, 04, 05, 06, 07, 08, 09, and 70. There are 12 output signals found on each FCB board. FCB board number 70 is for the position indicators.

To perform a FCB test:
Select: TEST and F3

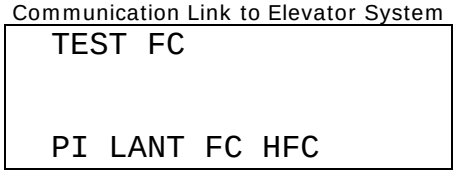

Figure 204

Select: 01(Board Number) and 04(Port Number) and Enter
This sends a signal to the Door Open Push Button for the Front Door.

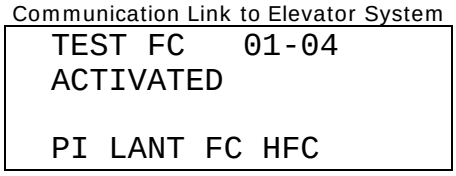

Figure 205

- HFC:

A user can send signals to the different output ports of the Hoistway FCB boards by selecting the HFC function found within the Test mode of the tool. A list of these output signals can be found in Appendix E. The possible HFCB boards within a system are numbered as the following: 01, 02, 03, 04, 05, 06, 07, 08, 11, 12, 13, 14, 15, 16, 17, 18, 70, 71, 72, 73, 78, 79, and 7E. There are 12 output signals found on each HFCB board. HFCB board numbers 70 through 73 are for the position indicators. Refer to Figures #206 and #207.

To perform a HFCB test:
Select: TEST and F4

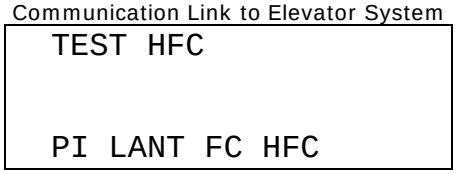

Figure 206

Select: 03(Board Number) and 05(Port Number) and Enter
This is the 4th Landing Down Push Button.

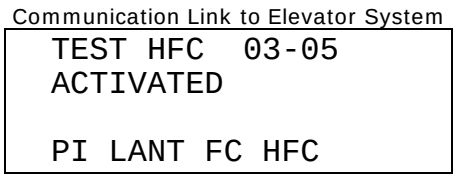

Figure 207

MPH-II (Software Revision 06-):

- CALL Mode:

Within the MPH-II diagnostic system calls may be entered and displayed through the tool. When the CALL mode is initiated through the tool, the screen will update informing the user as to what mode the tool is in and the available functions. Refer to Figure #208.

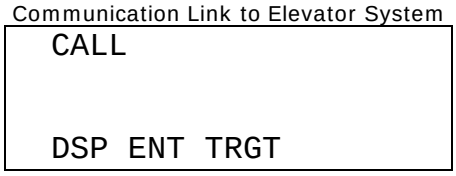

Figure 208

- DSP:

Used to display all registered car and hall calls. A “1” means a call is registered for that landing. “-“ means no call is registered for that landing. Figures numbered #209 through #214 show the different means to display car and hall calls.

Default: Front Car Calls:
Select: Calls and F1

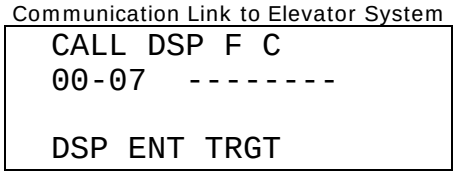

Figure 209

Rear Car Calls:
Select: Calls and F1 and Rear

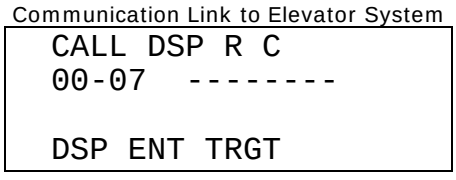

Figure 210

Front Up Hall Calls:
Select: Calls and F1 and HC Up

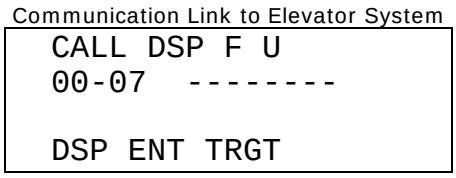

Figure 211

Front Down Hall Calls:
Select: Calls and F1 and HC Down

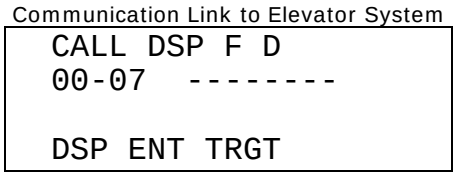

Figure 212

Rear Up Hall Calls:
Select: Calls and F1 and HC Up and REAR

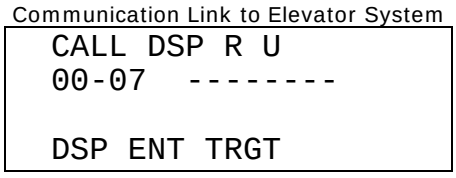

Figure 213

Rear Down Hall Calls:
Select: Calls and F1 and HC Down and REAR

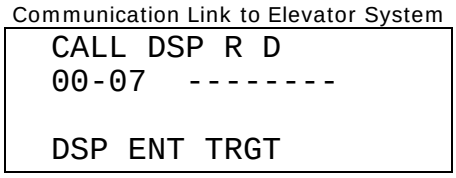

Figure 214

- ENT:

Used to display all registered car and hall calls. Figures #215 through #220 depict the different ways to register a call through the tool. Once a landing is entered the user can proceed to register a call at the previous or next landing by choosing the Previous or Next buttons respectively and then selecting Enter. When a call is entered the screen should update with the phrase “CALL ENTERED”.

Default: Front Car Calls:
Select: Calls and F2 and 01(Floor Number) and Enter

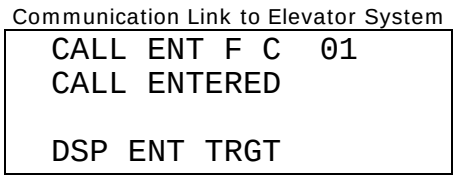

Figure 215

Rear Car Calls:
Select: Calls and F2 and REAR and 01(Floor Number) and Enter

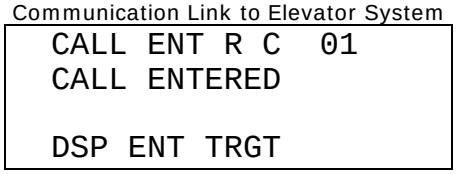

Figure 216

Front Up Hall Calls:
Select: Calls and F2 and HC Up and 01(Floor Number) and Enter

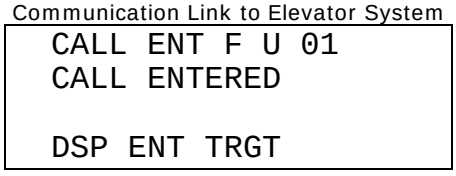

Figure 217

Front Down Hall Calls:

Select: Calls and F2 and HC Down and 01(Floor Number) and Enter

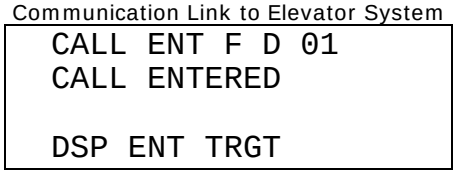

Figure 218

Rear Up Hall Calls:

Select: Calls and F2 and HC Up and REAR and 01(Floor Number) and Enter

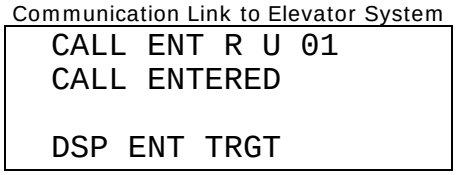

Figure 219

Rear Down Hall Calls:

Select: Calls and F2 and HC Down and REAR and 01(Floor Number) and Enter

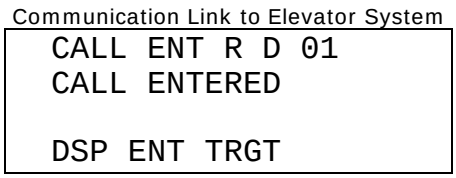

Figure 220

- TRGT:

The TRGT function of the Call Mode of the MPH-II tool allows the user to view the target floor for a particular car within the elevator system. Refer to Figure #221. To get into the target function the user needs to select Call mode and F3.

Select: Calls and F3

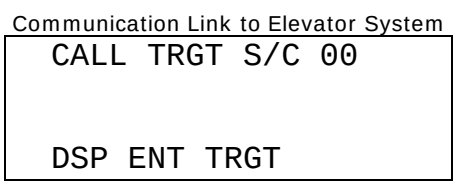

Figure 221

- Status Mode:

To get information on the status of communication between the MHC processor board and other components within the MPH-II elevator system can be viewed using the Status Mode. The Status Mode gives the user information as to communication problems between the controller and the FCB's located throughout the system. The ability to look at specific I/O and internal signals between individual cars and within a single car is given in the status mode. To enter the tool into status mode the user needs to select the button labeled Status or select Status from the mode keys menu. A keyboard shortcut of "Ctrl + S" will also enter the tool into Status Mode. Within the MPH-II elevator system Status has four functions associated with it. Refer to Figure #222. These functions are: CAR, BNK, FC, and CNTR. A brief description of these functions within Status mode are described as follows.

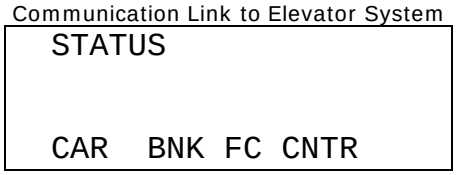

Figure 222

- CAR:

The CAR function of the Status mode for the MPH-II module presents to the user the ability to view various input, internal, and error signals within the MPH-II elevator controller system (SRV) and door controller (DOR). To access the two sections within the Car status function the user would select the corresponding function buttons, F1 and F2 respectively. Refer to Figure #223.

To enter into the CAR function:
Select: Status and F1

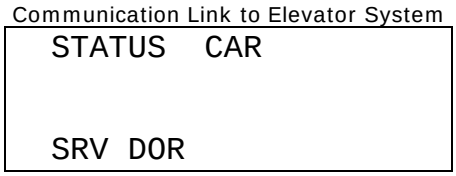

Figure 223

- SRV:

The SRV function of the CAR status function gives the user real time information on the current status of the elevator system. Refer to Figure #224. This screen is real time because it continually updates the screen with a phrase describing the current state of the elevator system. When the elevator state changes this screen will update informing the user to the problem the elevator is experiencing. Table #7 shows some of the possible descriptions given in the SRV function.

Select: Status and F1 and F1

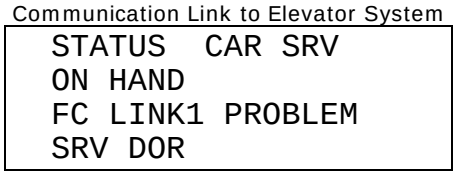

Figure 224

457T TIMEOUT	NORMAL (O.K.)
FC LINK1 PROBLEM	OH NO-I'M LOST
BATTERY RAM ERR	ON A.P.E.
COLD OIL BYPASS	ON BLOCK OPER
DOIN A DUMMY RUN	ON CAR-TO-LOBBY
DOOR-CONTACT TRB	ON CODE BLUE
DOOR-LIMIT TRBL	ON EMT OPERATION
EM-PWR PRE-WARN	ON FIRE PHS-1
EMERGENCY STOP	ON FIRE PHS-2
EMP:CAR SELECTED	ON HAND
EMP:NOT SELECTED	ON HOSP EMERGENCY
FC 00/01 PROBLEM	ON IND SERVICE
FC LINK2 PROBLEM	PHOTO-SW ERROR
K40/K40A MSMATCH	R BYPASS ON
LOW OIL/AST TRBL	RE-LEVEL PROBLEM
NO FR-DOOR PWR	SAF-T-EDGE PROB
NO RR-DOOR PWR	WHEW IT'S HOT!
NO STAT-PNL-PWR	

Table 7

- DOR:

  The DOR function of the CAR status function gives the user real time information on the current status of the elevator doors. Refer to Figure #225. This screen is real time because it continually updates the screen with a phrase describing the current state of the doors. When the door state changes this screen will update informing the user to the problem the doors are experiencing. Table 8 shows some of the possible descriptions given in the DOR function. To get the status of the Rear door operation, the user should select the call button Rear. Refer to Figure #226.

Select: Status and F1 and F2

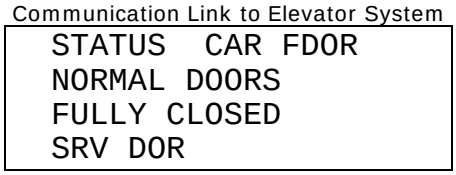

Figure 225

For Rear door status.

Select: Status and F1 and F2 and Rear

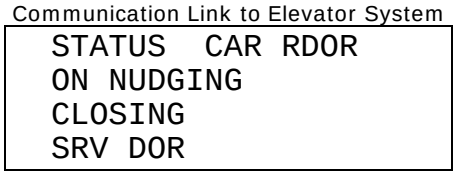

Figure 226

CLOSING	NORMAL DOORS
EMT DOORS	ON NUDGING
FULLY CLOSED	OPENING
FULLY OPENED	PHASE I DOORS
IS/HE DOORS	PHASE II DOORS
NO DOOR OPENING	RR-DOORS UNAVAIL
NO DOOR POWER	SPECIAL DOORS

Table 8

- BNK:

The bank or group status function within the MPH-II elevator system displays several internal signals within the group operation of the elevator system. The Bank status window displays the signal name, car number, and current signal status for the group. Refer to Figure #227 through #244. To move forward and backward through the list of bank status signals the Next and Previous buttons may be used respectively. A “1” means the condition is true for the signal name for that car. A “0” means the signal name has a False condition for that car. A table of all the available BNK signals and their description can be found in Table #9.

Group Communication Status (COMP)

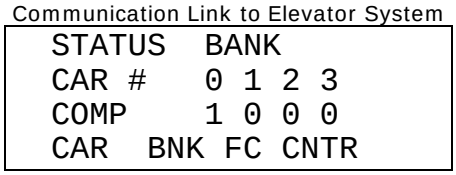

Figure 227

Dispatch Controller (DISP)

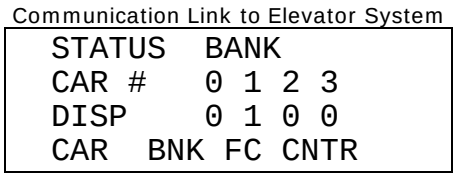

Figure 228

Master Controller (FCMS)

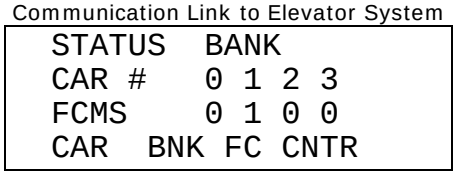

Figure 229

Floor Communication Link(FC) Problem (FC1P)

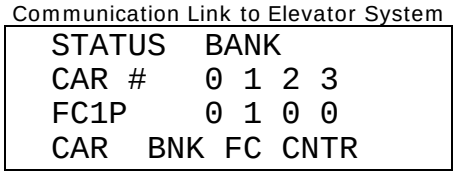

Figure 230

Cars currently in-service (INSV)

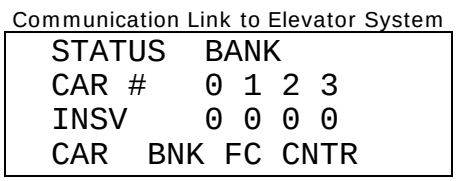

Figure 231

Cars currently available for service (AVAS)

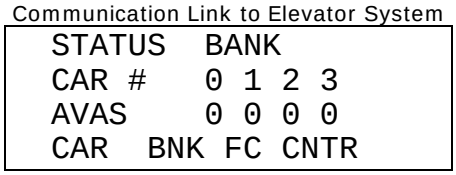

Figure 232

Cars traveling in the Up direction (UPTR)

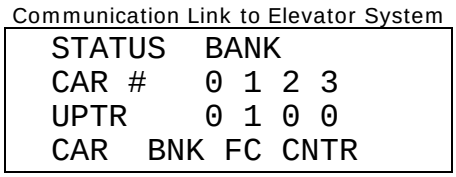

Figure 233

Car currently servicing a call in the Up direction (UPSV)

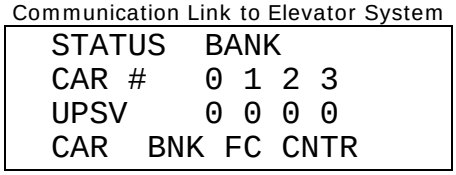

Figure 234

Landing where car will be stopping (AVP)

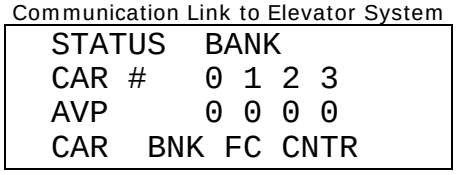

Figure 235

Door is closed or closing (DRCL)

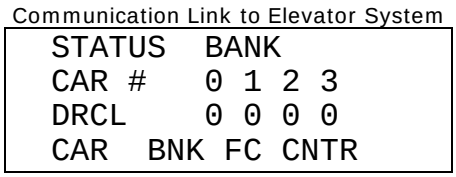

Figure 236

Safety Circuit complete (K29)

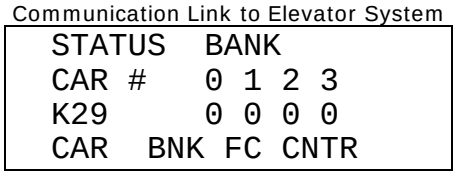

Figure 237

Car in Leveling zone (LVZN)

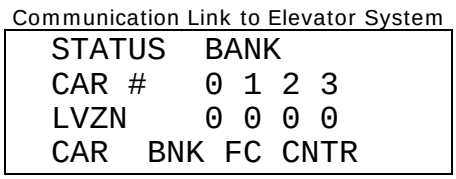

Figure 238

Extended Leveling (EXLV)

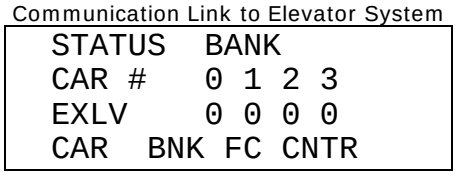

Figure 239

Car operating at decelerated speed (DEC)

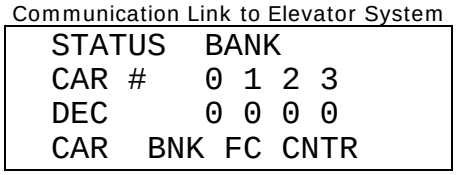

Figure 240

Cars on Independent Service (INDS)

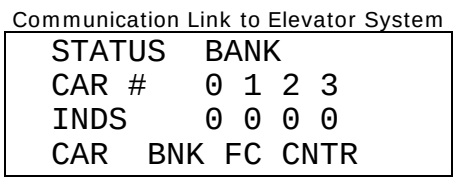

Figure 241

Cars on Fire Service (FIRE)

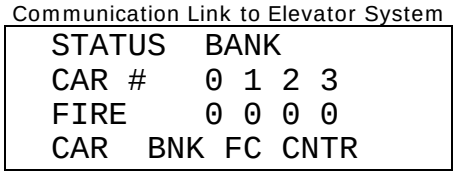

Figure 242

Anti-Stall Timer (AST)

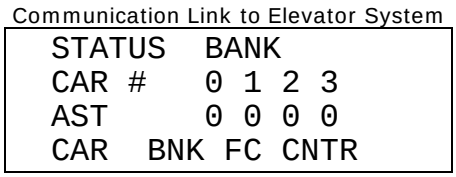

Figure 243

Oil Temperature Problem (TEMP)

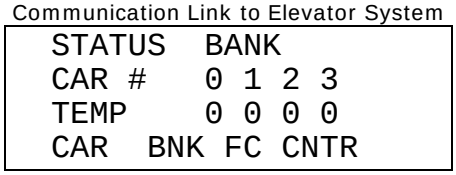

Figure 244

Note: Bank status may only be viewed if the car being diagnosed is part of a group operation. If the car is in simplex operation a message of SINGLE CAR SYS will appear within the Communication Link to Elevator System window. Refer to Figure #245.

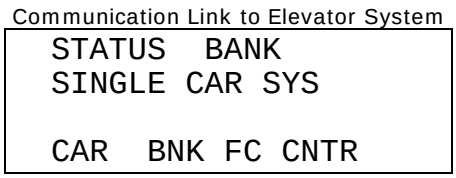

Figure 245

Signal:	Description:
AST	Anti-stall timer
AVAS	Available for service
AVP	Advanced landing position
COMP	Communication status
DEC	Car operating at decelerated speed
DISP	Dispatch controller
DRCL	Door closed
EXLV	Extended leveling
FC1P	Floor communications link #1 problem
FCMS	Master controller
FIRE	Fire service
INDS	Independent service
INSV	In service
K29	Safety circuit
LVZN	Leveling zone
TEMP	Oil-temperature problem
UPSV	Car servicing call in UP direction
UPTR	Car traveling in UP direction

Table 9

- FC:

  All floor controller boards(FCB's) are connected to the MPH-II processor by means of a serial link. The FC function displays to the user the status of this serial link to these car FCB boards, hall FCB boards, and the status panel boards. If no problem exists within the serial link a status of COMM OK will appear within the communications link window. Otherwise the term, COMM PROBLEM, will appear and the number of the board with the communication problem will be listed. If four boards are listed, the Next button may need to be used to view an additional list of bad boards within the FC serial link. Figures #246 through #251 show when the FCB board communications link is good and when it is bad for the three FC areas.

  For CFC board communication status:
  Select: Status and F3 and F1

Communication Link to Elevator System

```
STATUS  FC  CAR
COMM OK

CAR HALL SPB
```

Figure 246

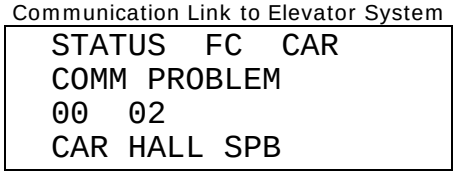

Figure 247

For HFC board communication status:
Select: Status and F3 and F2

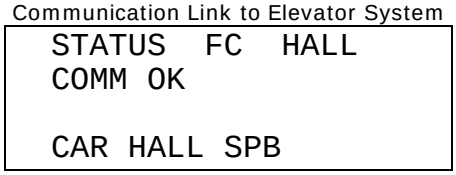

Figure 248

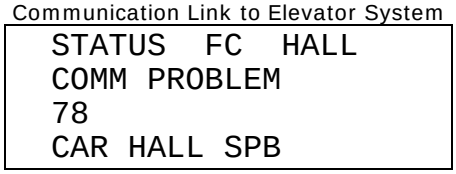

Figure 249

For Status Panel board communication status:
Select: Status and F3 and F3

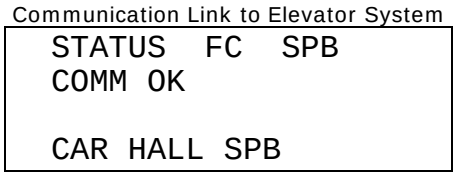

Figure 250

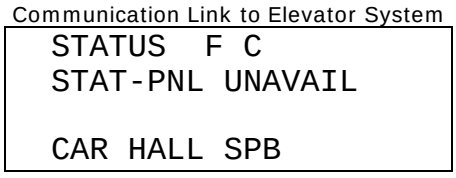

Figure 251

- CNTR:

  Every time the elevator enters into a high speed run, the Stop Counter function found within the Status mode of the tool increments in value. Refer to Figure #252. This value is a registry of the number of times the elevator has entered into a high speed

run within its lifetime. Like an odometer on a car this number can not be reset, but when it reaches 999999 the counter will roll over to all 0's.

Select: Status and F4.

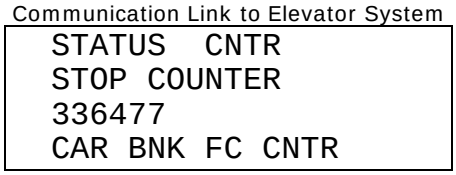

Figure 252

- Display Mode:

The display mode is used to show the user the operating values of a specific location within the elevator system. Specifically the Display mode of the tool allows the user to see these values within the elevator's memory, FCB I/O ports, HFCB I/O ports, Status Panel I/O ports, input signals, and output signals. To enter the tool into Display mode, the user needs to select the button labeled Display or select Display from the mode keys menu. A keyboard shortcut of "Ctrl + D" will also enter the tool into Display Mode. Within the MPH-II elevator system Display mode has four functions associated with it. Refer to Figure #253. These functions are: MEM, FC, IN, and OUT. A brief description of these functions within Display mode are described as follows.

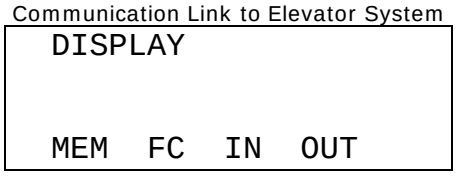

Figure 253

- MEM:

The memory function of the MPH-II diagnostic tool allows the user to view specific memory addresses within the elevator system. To enter into the memory function, the user would first select the button Status and then F1. Refer to Figure #254. After the MEM function is invoked, the user must enter a 4 byte hex address for the memory location desired to be viewed. Refer to figure #255. When this hex address has been completed the Enter push button is pressed to send it to the elevator system for a response to the tool. Refer to Figure #256. To move to the previous or next memory address the buttons labeled Previous and Next may be used respectively.

Select: Status and F1.

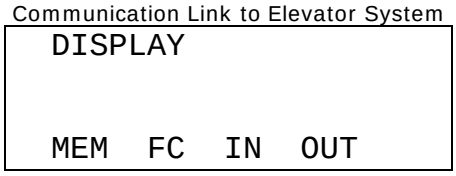

Figure 254

Select: 0008 (Memory Address).

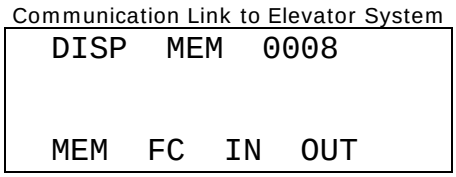

Figure 255

Select: Enter.

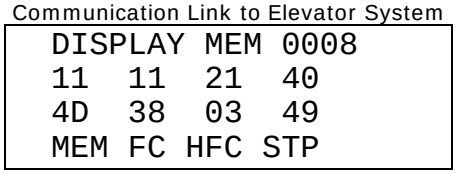

Figure 256

- FC:

An I/O state of a floor controller board may be viewed using the FC function of the Display mode. Refer to Figure #257. When the FC function is selected the user must decide whether they desire to look at the I/O of an Car FCB board, a Hall FCB board, or a Status Panel board. When the type of board is selected the user must enter the number of the FC board they desire to look at. When the board number is entered and the Enter key is selected the elevator will respond showing the twelve Input and twelve output bits of the board. Refer to Figure #258 through #262. Please review the FCB board I/O chart in Appendix D and E for specific information on the I/O's for each FCB board.

Select: Display and F2.

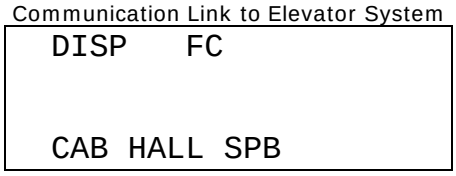

Figure 257

Select the Type of Board:

For Car FCB:

Select: F1

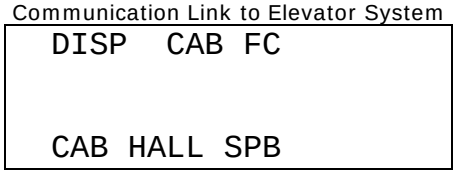

Figure 258

For Hall FCB:

Select F2

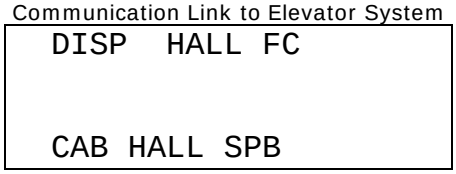

Figure 259

For Status Panel FCB:

Select F3

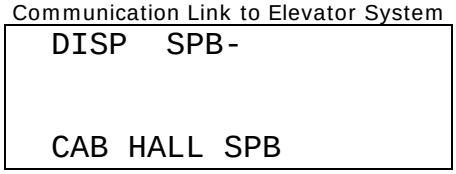

Figure 260

Select: 001 (FCB Board Number).

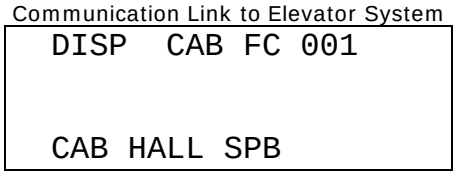

Figure 261

Select: Enter.

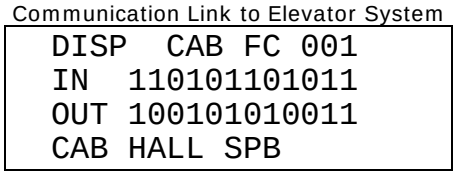

Figure 262

- IN:

The IN function of the Display mode allows the user to view and diagnose signals coming into and internal to the MPH-II system. Within the IN function is a listing of signals listed four at a time with their current value. Refer to Figure #263. At any time the user may proceed to the previous or next group of signals by selecting the buttons titled Previous and Next. All signal information displayed within the IN function is continuously updated through the tool's communication protocol. Figures #264 through #269 show the input signals within an MPH-II elevator system. A list of all of the input signals found within this function can be seen in Table #10.

Select: Display and F3.

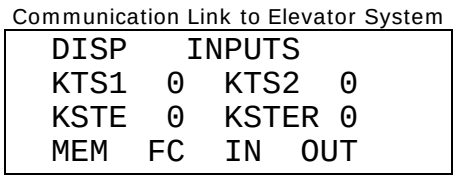

Figure 263

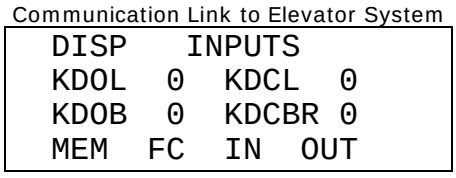

Figure 264

Communication Link to Elevator System

```
DISP   INPUTS
KHU   0  KLU   0
KHD   0  KLD   0
MEM  FC  IN  OUT
```

Figure 265

Communication Link to Elevator System

```
DISP   INPUTS
KHEM  0  KHCS  0
KFMCM 0  KEMTC 0
MEM  FC  IN  OUT
```

Figure 266

Communication Link to Elevator System

```
DISP   INPUTS
KHOLD 0  KFCR  0
KTS1R 0  KTS2R 0
MEM  FC  IN  OUT
```

Figure 267

Communication Link to Elevator System

```
DISP   INPUTS
KDOBR 0  KDCBR 0
KDOLR 0  KDCLR 0
MEM  FC  IN  OUT
```

Figure 268

Communication Link to Elevator System

```
DISP   INPUTS
KTSA  0

MEM  FC  IN  OUT
```

Figure 269

Signal:	Description:
KDCB	Door close button
KDCBR	Rear door close button
KDCL	Door closing
KDCLR	Rear door closing
KDOB	Door open button
KDOBR	Rear door open button
KDOL	Door opening
KDOLR	Rear door opening
KEMTC	Emergency medical operation
KFCR	Fire service recall
KFMCM	Phase II fire service ON position
KHCS	Handicap operation push button
KHD	Down slowdown
KHEM	Hospital emergency
KHOLD	Phase II fire service HOLD position
KHU	Up slowdown
KLD	Level down
KLU	Level up
KSTE	Safety edge
KSTER	Rear safety edge
KTS1	Safety ray
KTS1R	Rear safety ray
KTS2	Safety ray
KTS2R	Rear safety ray
KTSA	Safety ray cutout

Table 10

- OUT:

  The OUT function of the Display mode allows the user to view and diagnose signals leaving the MPH-II system to the various operating devices. Within the OUT function is a listing of signals listed four at a time with their current value. Refer to Figure #270. At any time the user may proceed to the previous or next group of signals by selecting the buttons titled Previous and Next. All signal information displayed within the OUT function is continuously updated through the tool's communication protocol. Figures #271 through #273 show the output signals within an MPH-II elevator system. A list of all of the output signals found within this function can be seen in Table #11.

Select: Display and F3.

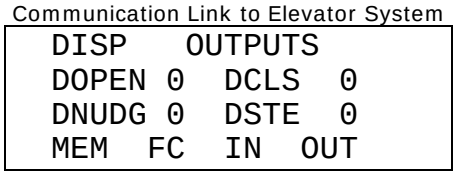

Figure 270

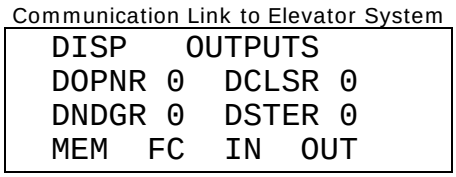

Figure 271

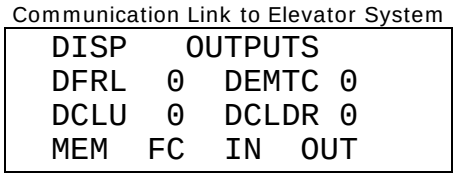

Figure 272

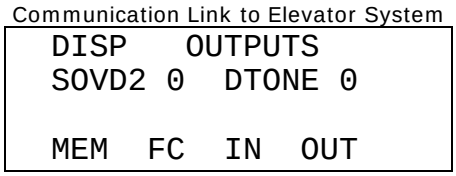

Figure 273

Signal:	Description:
DCLD	Cab lantern down
DCLS	Close front door
DCLSR	Rear door close
DCLU	Cab lantern up
DEMTC	Emergency medical operation light
DFRL	Fire service light
DNDGR	Rear door nudging
DNUDG	Front door nudging
DOPEN	Open front door
DOPNR	Open rear door
DSTE	Front door safety edge
DSTER	Rear door safety edge
DTONE	Car chime
SOVD2	Car stop output

Table 11

- Profile Mode:

The Profile mode in the MPH-II elevator system shows features of the elevator system that are job specific. These features that the profile mode allows the user to view are the floors that are enabled, field programmable adjustments, programmable digital position indicators, and security access codes. To enter into Profile mode, the user would do one of the following three things: 1) Select the menu item Profile under the Mode Keys menu, 2) Select the button labeled Profile in the control screen, 3) Use the keyboard shortcut Ctrl + P. Once in Profile mode four functions are displayed to the user: ENA, ADJ, DPI, LOCK. Refer to Figure #274. Select one of the Function keys to call up one of these functions.

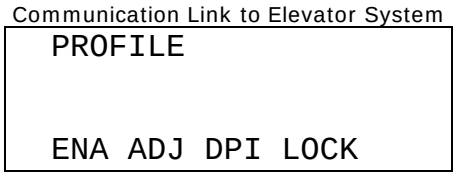

Figure 274

- ENA:

The enables mode allows the user to view which floors are active or enabled in the elevator system being diagnosed. An enabled floor is represented by the numeric character “1”, while a disabled floor is represented by a “-“. Refer to Figure #275. The enables function shows the enabled landings for both the front and rear landings.

To view the enabled landings.
Select: Profile and F1.

Communication Link to Elevator System

```
PROFILE ENABLES
FLOORS 01234567
FRONT: 111-----
REAR:  --------
```

Figure 275

- ADJ:

The MPH-II gives the user an extra feature that is not found within the MPH-I. This feature is the ADJ function. The ADJ function found within the Profile mode gives the user the ability to alter several field adjustable variables. Some of the field adjustable variables that can be found within the ADJ function are door times and floor lockouts. The user can enter into the ADJ function by: 1) Selecting Profile and then 2) Selecting ADJ. Once in ADJ the Communications Link to Elevator System window will appear as in Figure #276. In the ADJ function are controls that the user can select to increase the adjustment value, decrease the adjustment value, save the current adjustment value to RAM. Also, the Enter key can be used to toggle from the top adjustment to the bottom one. The Previous and Next keys can be used to progress forward and backward through the adjustment list. Refer to Figures #277 through #284. A list of the possible adjustments with their meaning, range, and default value can be viewed in Appendix F.

Select: Profile and F2

Communication Link to Elevator System

```
PROFILE ADJUST
DR-OPN TIME=06.0
S-DOPN TIME=03.0
INC DEC SAV
```

Figure 276

Communication Link to Elevator System

```
PROFILE ADJUST
NUDGING FTR= Y
NDGING TIME=20.0
INC DEC SAV
```

Figure 277

Communication Link to Elevator System

```
PROFILE ADJUST
STALL -TIME=08.0
LBY TS-TIME=02.0
INC DEC SAV
```

Figure 278

Communication Link to Elevator System

```
PROFILE ADJUST
COR TS-TIME=01.5
CAR TS-TIME=23.0
INC DEC SAV
```

Figure 279

Communication Link to Elevator System

```
PROFILE ADJUST
CLDOIL-mins= 05
MAIN FLOOR = 00
INC DEC SAV
```

Figure 280

Communication Link to Elevator System

```
PROFILE ADJUST
PARKING FLR= 00
PRK DOR-OPR= 01
INC DEC SAV
```

Figure 281

Communication Link to Elevator System

```
PROFILE ADJUST
C-CALL TONE= N
EMP 1ST CAR= 01
INC DEC SAV
```

Figure 282

Communication Link to Elevator System

```
PROFILE ADJUST
EMP 2ND CAR= 01
EMP 3RD CAR= 02
INC DEC SAV
```

Figure 283

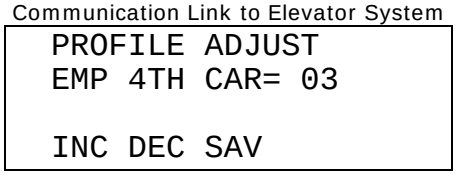

Figure 284

- DPI:

The MPH-II gives the user the ability to adjust the digits displayed on the Digital Position Indicators found throughout the elevator system. The MPH-II's digital PI's can display just about any ASCII character. The DPI function gives the user the ability to customize both the left and the right characters on a digital PI for each individual landing the elevator is at. The user can enter into the DPI function by: 1) Selecting Profile and then 2) Selecting DPI. Once in DPI the Communications Link to Elevator System window will appear as in Figure #285. In the DPI function are controls that the user can select to increase(INC) the adjustment value, decrease(DEC) the adjustment value, and save(SAV) the current adjustment value to RAM. The Previous and Next keys can be used to progress forward and backward through the floor number list for the digital PI. A press of the Enter button will toggle between left and right PI characters. Refer to Figures #286 through #295.

Select: Profile and F3

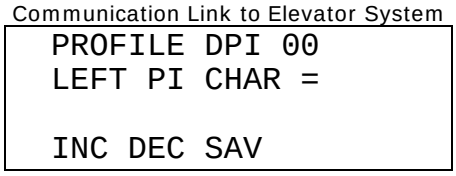

Figure 285

To Increment:
Select: F1

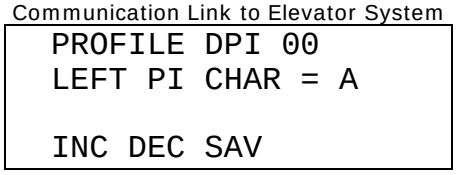

Figure 286

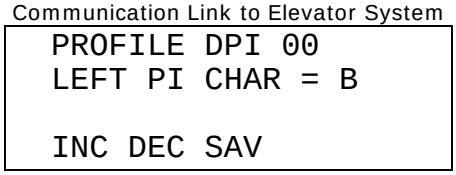

Figure 287

To Decrease:
Select: F2

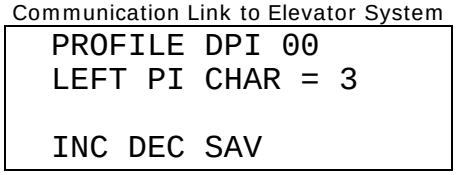

Figure 288

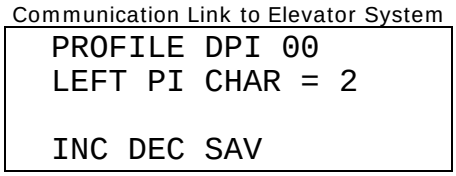

Figure 289

To toggle from left to right:
Select: Enter

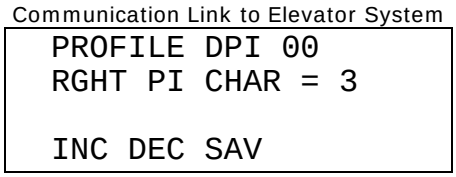

Figure 290

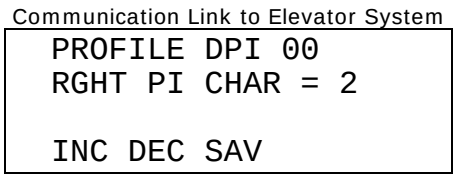

Figure 291

To move to the next landing:
Select: Next

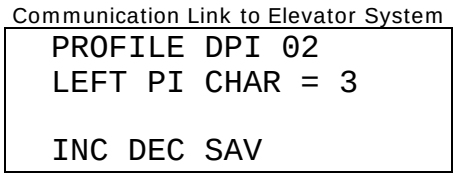

Figure 292

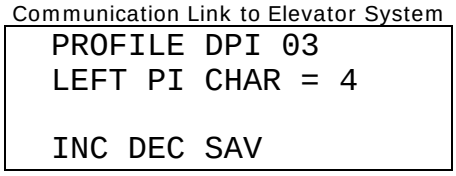

Figure 293

To move to the Previous landing:
Select: Previous

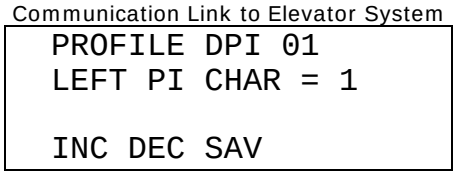

Figure 294

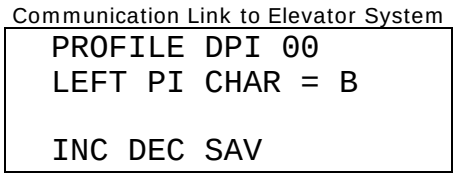

Figure 295

- LOCK:

The MPH-II elevator controller has the ability of using security access codes to allow access to a car call. When the elevator's security access code is enabled the elevator operator must punch in his code with the car call buttons of the elevator. The LOCK function of the Profile mode allows the user to view and change the access codes for the floors contained within the elevator. To enter into the LOCK function of the Profile mode, the user needs to select Profile and then F4. Refer to Figure #296. After the LOCK function has been entered, the user needs to select a landing in which to view or set up the access code. Refer to Figure #297. If the security feature is not enabled in the elevator firmware, the Communication Link to Elevator System window will show "DOES NOT EXIST". Refer to Figure #298. Front and rear calls can have their

security features set by selecting the button labeled Front or Rear before entering a floor value. Refer to Figure #299 and #300. Once the desired landing is selected and the button access code is displayed, Figure #301, the user is given new function options of UPDT and SAV.

Select: Profile and F4

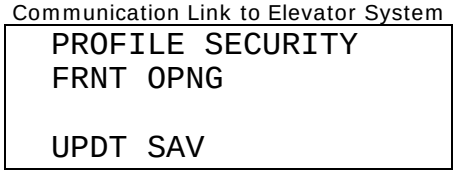

Figure 296

Default: Front Opening

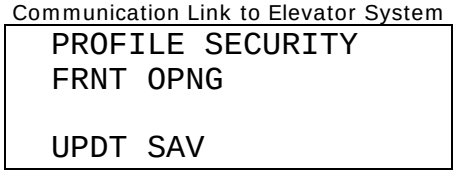

Figure 297

For Rear opening:
Select: Rear

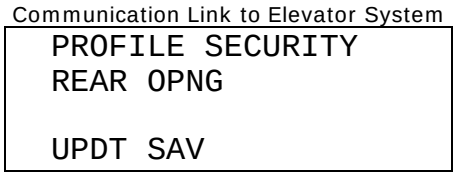

Figure 298

Elevator not programmed for security access:

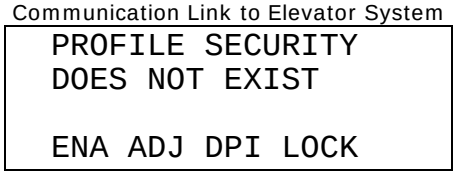

Figure 299

Select: Type in 1 (Landing Number) and Enter

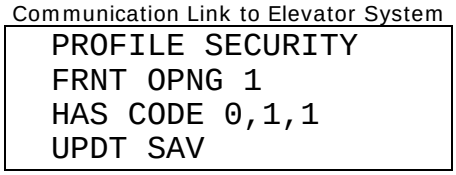

Figure 300

- UPDT:

  The UPDT function within the LOCK function of the Profile mode, allows the user to change the buttons necessary to log a car call into the elevator when the elevator is on security operation. Refer to Figure #301. After the UPDT function is selected the user will type in the three numbers corresponding to the car call buttons located within the elevator system. Refer to figure #302. Remember that the highest number possible for an access code digit is the highest available floor within the elevator system. Once the three digits of the access code have been updated the user will select enter to register the new access number into the elevator system.

  Select: F1

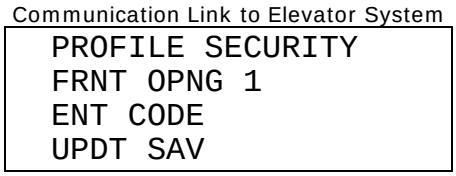

Figure 301

  Select: Type in 230 (New 3 digit Access Code) and Enter

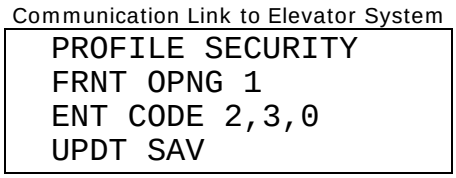

Figure 302

- SAV:

  The SAV function allows the user to save the button access code for the selected floor. When the SAV function has been selected the Communication Link to Elevator System window will update to “SAVE SECURITY”. Refer to Figure #303.

Select: F2

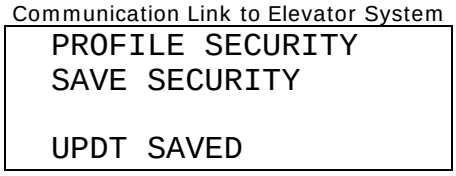

Figure 303

- Active Mode:

The Active mode gives the user the ability to activate the Hospital Emergency and Emergency Power features of the elevator system. Also found within the Active mode are function that allow the user to view and set the Real-Time clock and view active error signals within the elevator system. These functions have the labels HEM, PWR, CLK, and ERR respectively. Refer to Figure #304.

To enter into Active mode:
Select: Active

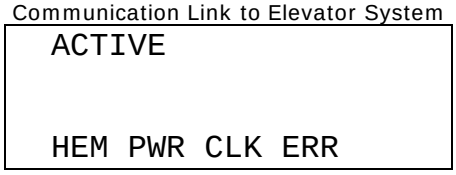

Figure 304

- HEM:

The HEM function of the Active mode allows the user to enable or disable the hospital Emergency Service operation, when available. The active and inactive state of the Hospital Emergency Service can be toggled by selecting the HEM function. Refer to Figures #305 and #306. If the HEM function is not programmed or available in the elevator system the Communication Link to Elevator System window will appear with a label of UNAVAILABLE. Refer to Figure #307.

To activate Hospital Emergency Service:
Select: Active and F1

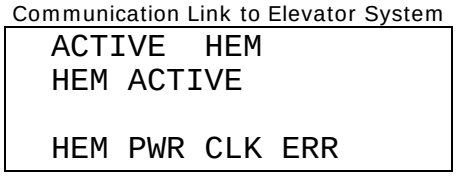

Figure 305

To de-activate Hospital Emergency Service:
Select: Active and F1

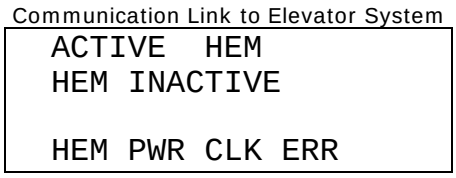

Figure 306

If Hospital Emergency Service can't be Activated the communications link window will appear with the label UNAVAILABLE.

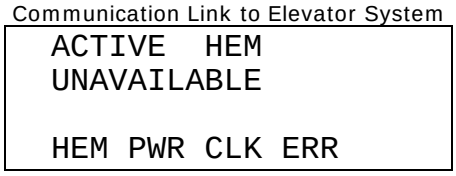

Figure 307

- PWR:

To activate the special power (emergency power) operation of the elevator the user can select the function PWR. When selected, the PWR function places the SP/TDS Power setting into either a function or overridden state. To toggle between these two states the user needs to select the PWR function till the desired state appears. Refer to Figures #308 and #309.

To make the emergency power switch functional:
Select: Active and F2

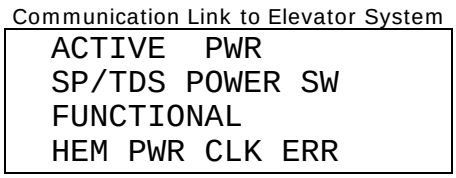

Figure 308

To override the emergency power switch:
Select: Active and F2

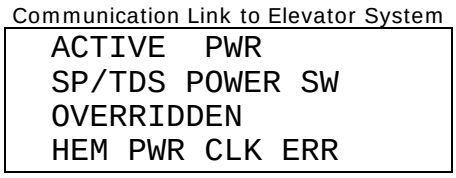

Figure 309

- CLK:

To view the current status of the real-time clock, the user would invoke the CLK function of the Active mode. If the real-time clock is available the current time and date set up in the elevator will be displayed. If the real-time clock is not present the Communication Link to Elevator System window will display "UNAVAILABLE". Refer to Figures #310 and #311.

To view the real time clock:
Select: Active and F3

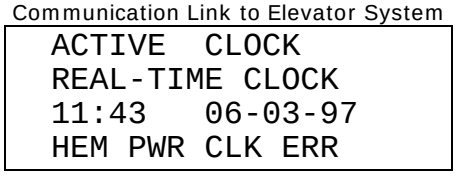

Figure 310

If the Real-Time clock is not present:
Select: Active and F3

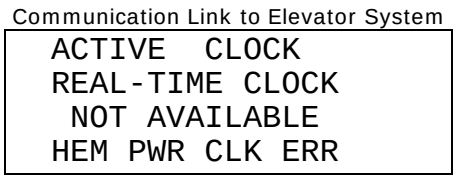

Figure 311

- ERR:

The MPH-II software rev 06 and after has a mode where error signals and their current states can be viewed. These error signals are updated continuously while the elevator power is on. To view the MPH-II's error codes, the user enters into Active mode and selects F1 for the ERR function. A brief description of the error codes, and how they are displayed to the user are shown in Figures #312 through #316. The error list can be moved forward and backward by selecting the Previous and Next keys. Table #12 shows the names and descriptions of the error signals found within the MPH-II elevator system.

To view the active error signals:
Select: Active and F4
Communications Trouble (COMTRB)
FCB Communications Trouble (FCTRB)

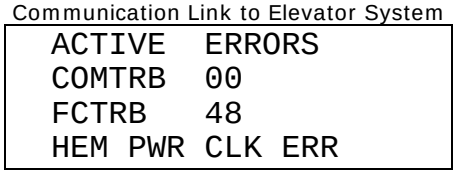

Figure 312

HFCB Board Communications Trouble (HFCTRB)
8256 MUART Initializations (MUIZ)

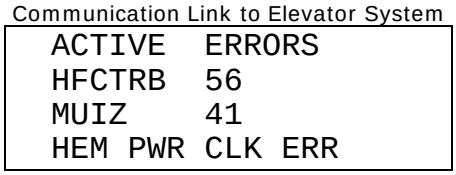

Figure 313

Non-Volatile RAM Problems (NVRMBD)
CPU Resets (RESET)

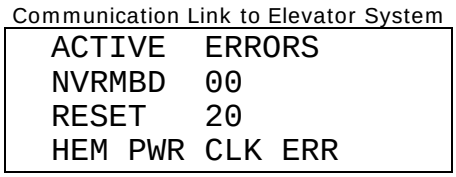

Figure 314

Front Door Stuck (TDS1ER)
Rear Door Stuck (TDS2ER)

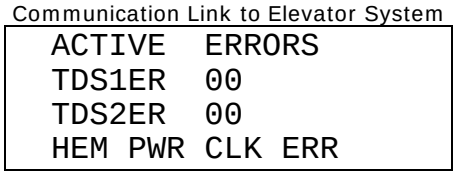

Figure 315

Timer Trouble (TRMTRB)

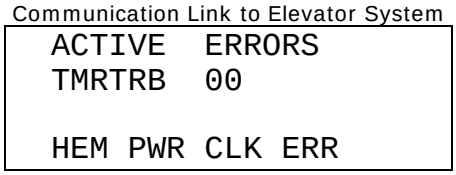

Figure 316

Signal:	Description:	States:
COMTRB	Communications Trouble Count	Number of times communications has failed
FCTRB	FCB (Link #1) Communications Trouble	Indicates number of times communications failed to a single Car FCB Board on Link #1
HFCTRB	HFCB (Link #2) Communications Trouble	Indicates number of times communications failed to a single hallway FCB Board on Link #2
MUIZ	8256 Multifunctional Universal Asynchronous Receiver-Transmitter Initializations	Number of times the 8256 MUART has reset
NVRMBD	Non-Volatile RAM Error Conditions	Condition of Battery backed RAM (1 = Bad, 0 = Good)
RESET	CPU Reset Count	Number of times CPU has been reset
TDS1ER	Front Door Stuck	1 = Front doors stuck, 0 = Front doors OK
TDS2ER	Rear Door Stuck	1 = Rear doors stuck, 0 = Rear door OK
TMRTRB	Timer Trouble Counter	Indicates number of times an error timer has timed out

Table 12

- Test Mode:

The Test mode can be used to test the functionality of PI's, Hall Lanterns, FCB Board operations, and HFCB Board operation. To enter into Test mode the elevator must be on Hand operation or inspection. Refer to Figure #317. Once the car is on inspection these tests can be performed. For more information on the FCB and HFCB tests please see Appendix D and E. Test mode can be entered by selecting Test from the Mode Keys menu, selecting the Test push button, or using the Ctrl + T accelerator. The different functions located within the Test mode are described as follows:

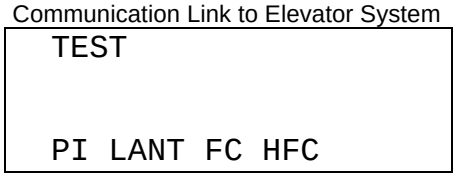

Figure 317

- PI:

The PI function of the test mode allows the user to test the functionality of the horizontal and digital PI's. Once the PI function is entered, the user needs to enter in the floor number for the PI location desired to be tested. After the floor location is entered, the communication link will update the screen to show the item is activated. Refer to Figures #318 through #319. When an item is activated, the user can then go to the device and check its condition.

To perform a PI test:
Select: TEST and F1

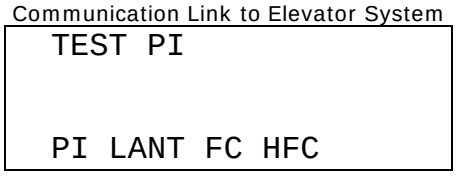

Figure 318

Select: 02(Floor Number) and Enter

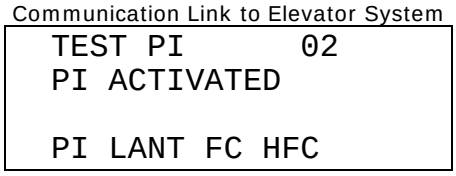

Figure 319

- LANT:

LANT test, of the test mode, allows the user to determine the functionality of the hall lanterns of the MPH-II elevator system. When the user implements the LANT function of the test mode and then enters a landing number, the Hall lantern on that landing will light. Refer to Figures #320 through #323. The user has the ability to choose which lantern, up or Down direction, to light by selecting the HC Up or HC Down call button.

Default: Up Lantern test:
Select: TEST and F2

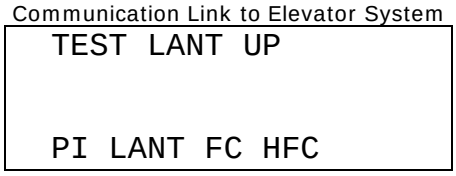

Figure 320

Select: 01(Floor Number) and Enter

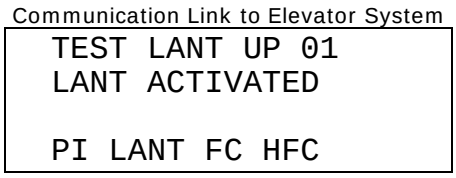

Figure 321

To perform a Down Lantern test
Select: TEST and F2

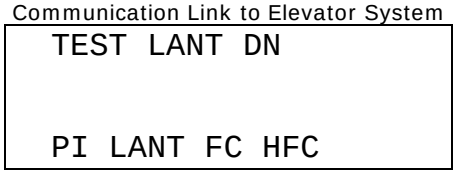

Figure 322

Select: 02(Floor Number) and Enter

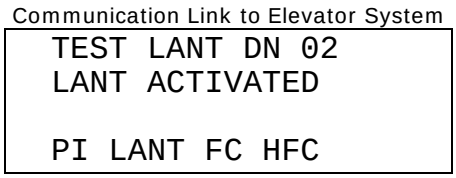

Figure 323

- FC:

By using the FC function of the Test mode, the user can send signals to the different output ports of the Car FCB boards. Refer to Figures #324 and #325. A list of these output signals can be found in Appendix D. The possible FCB boards within a system are numbered as the following: 01, 02, 03, 04, 05, 06, 07, 08, 09, and 70. There are 12 output signals found on each FCB board. FCB board number 70 is for the position indicators.

To perform a FCB test:
Select: TEST and F3

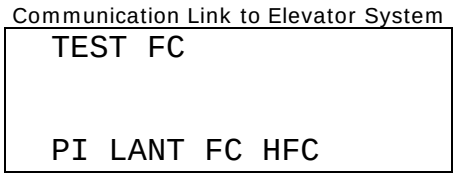

Figure 324

Select: 01(Board Number) and 04(Port Number) and Enter
This sends a signal to the Door Open Push Button for the Front Door.

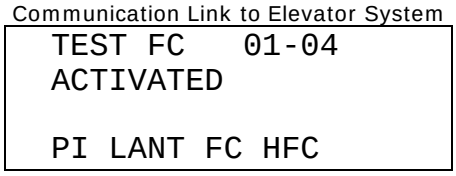

Figure 325

- HFC:

A user can send signals to the different output ports of the Hoistway FCB boards by selecting the HFC function found within the Test mode of the tool. A list of these output signals can be found in Appendix E. The possible HFCB boards within a system are numbered as the following: 01, 02, 03, 04, 05, 06, 07, 08, 11, 12, 13, 14, 15, 16, 17, 18, 70, 71, 72, 73, 78, 79, and 7E. There are 12 output signals found on each HFCB board. HFCB board numbers 70 through 73 are for the position indicators. Refer to Figures #326 and #327.

To perform a HFCB test:
Select: TEST and F4

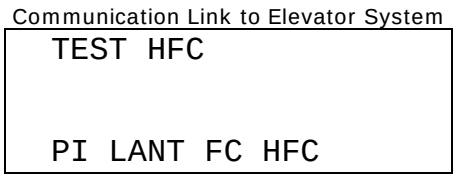

Figure 326

Select: 03(Board Number) and 05(Port Number) and Enter
This is the 4th Landing Down Push Button.

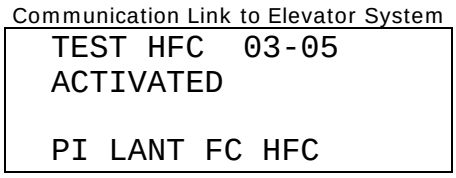

Figure 327

Appendix A: FREEDOM Tool Shortcut Keys

Shortcut Key	Function
Ctrl - X	Exit software
Ctrl - L	Logon Mode
Ctrl - C	Call Mode
Ctrl - S	Status Mode
Ctrl - D	Display Mode
Ctrl - P	Profile Mode
Ctrl - T	Test Mode
Ctrl - A	Active Mode
Ctrl - F1	F1
Ctrl - F2	F2
Ctrl - F3	F3
Ctrl - F4	F4
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
A	A
B	B
C	C
D	D
E	E
F	F
←, Left Arrow	Previous
→, Right Arrow	Next
Ctrl - O	Front
Ctrl - R	Rear
↑, Up Arrow	Hall Call Up
↓, Down Arrow	Hall Call Down
Space Bar	Car Calls

Appendix B: FCB I/O MPH-I

FCB Board:	Bit #:	Pin #:	Signal:	Description:
01	0	18	KFCR	Fireman's Call Cancel Button
01	1	17	KFEMCM	Fire service switch in ON
01	2	16	KHOLD	Fire service switch in HOLD
01	3	15	DFRL	Fire service light
01	4	14	KDOB	Door open push button
01	5	13	KDCB	Door close push button
01	6	12	KLU	Leveling UP
01	7	11	KLD	Leveling Down
01	8	10	CLU	Cab lantern UP
01	9	9	CLD	Cab lantern Down
01	10	8	DSINGLE	Single chime
01	11	7	DDOUBLE	Double chime
02	0	18	DOPEN	Open door command to door operator
02	1	17	DCLOSE	Close door command to door operator
02	2	16	DNUDG	Nudge door command to door operator
02	3	15	DHVD	Heavy door command
02	4	14	KDCL	Door close limit
02	5	13	KDOL	Door open limit
02	6	12	KSTE	Safety edge
02	7	11	KTS1	Safety ray
02	8	10	KTS2	Safety ray
02	9	9	KTSA	Safety ray cutout switch
02	10	8	0B	1st landing push button
02	11	7	1B	2nd landing push button
03	0	18	2B	3rd landing push button
03	1	17	3B	4th landing push button
03	2	16	4B	5th landing push button
03	3	15	5B	6th landing push button
03	4	14	6B	7th landing push button
03	5	13	7B	8th landing push button
03	6	12	KHU	Up slowdown zone
03	7	11	KHD	Down slowdown zone

FCB Board:	Bit #:	Pin #:	Signal:	Description:
03	8	10	KHEMO	Independent service / Hospital emergency switch
03	9	9	KHCS	Handicap tone
03	10	8	CS0	Floor cutout switch 0
03	11	7	CS1	Floor cutout switch 1
04	0	18	0BR	1st rear landing push button
04	1	17	1BR	2nd rear landing push button
04	2	16	2BR	3rd rear landing push button
04	3	15	3BR	4th rear landing push button
04	4	14	KDOBR	Rear door open push button
04	5	13	KDCBR	Rear door close push button
04	6	12	CS2	Floor cutout switch 2
04	7	11	CS3	Floor cutout switch 3
04	8	10	CS4	Floor cutout switch 4
04	9	9	CS5	Floor cutout switch 5
04	10	8	DEQL	Earthquake lantern
04	11	7	DEML	Emergency power lantern
05	0	18	0B	1st landing push button
05	1	17	1B	2nd landing push button
05	2	16	2B	3rd landing push button
05	3	15	3B	4th landing push button
05	4	14	4B	5th landing push button
05	5	13	5B	6th landing push button
05	6	12	6B	7th landing push button
05	7	11	7B	8th landing push button
05	8	10	0BR	1st rear landing push button
05	9	9	1BR	2nd rear landing push button
05	10	8	KDOB	Door open push button
05	11	7	KDCB	Door close push button
06	0	18	DOPENR	Open door command to rear door operator
06	1	17	DCLOSER	Close door command to rear door operator

FCB Board:	Bit #:	Pin #:	Signal:	Description:
06	2	16	DNUDGR	Nudge door command to rear door operator
06	3	15	KHVDR	Heavy rear door command
06	4	14	KDCLR	Rear door close limit
06	5	13	KDOLR	Rear door open limit
06	6	12	KSTER	Rear safety edge
06	7	11	KTS1R	Rear safety ray
06	8	10	KTS2R	Rear safety ray
06	9	9	KDOBR	Rear door open button
06	10	8	KDCBR	Rear door close button
06	11	7		
07	0	18	KHUR	Up slowdown rear
07	1	17	KLUR	Up leveling rear
07	2	16	KLDR	Down leveling rear
07	3	15	KHDR	Down slowdown rear
07	4	14	CLUR	Rear cab lantern UP
07	5	13	CLDR	Rear cab lantern Down
07	6	12	2BR	3rd rear landing push button
07	7	11	3BR	4th rear landing push button
07	8	10		
07	9	9		
07	10	8		
07	11	7		
08	0	18	0B	1st landing push button
08	1	17	1B	2nd landing push button
08	2	16	2B	3rd landing push button
08	3	15	3B	4th landing push button
08	4	14	4B	5th landing push button
08	5	13	5B	6th landing push button
08	6	12	6B	7th landing push button
08	7	11	7B	8th landing push button
08	8	10	KDOB	Door open push button
08	9	9	KDCB	Door close push button
08	10	8	CLU	Cab lantern Up

FCB Board:	Bit #:	Pin #:	Signal:	Description:
08	11	7	CLD	Cab lantern Down
09	0	18	0BR	1st rear landing push button
09	1	17	1BR	2nd rear landing push button
09	2	16	2BR	3rd rear landing push button
09	3	15	3BR	4th rear landing push button
09	4	14	KDOBR	Rear door open push button
09	5	13	KDCBR	Rear door close push button
09	6	12		
09	7	11		
09	8	10		
09	9	9		
09	10	8		
09	11	7		
70	0	18	AVP0	1st landing PI
70	1	17	AVP1	2nd landing PI
70	2	16	AVP2	3rd landing PI
70	3	15	AVP3	4th landing PI
70	4	14	AVP4	5th landing PI
70	5	13	AVP5	6th landing PI
70	6	12	AVP6	7th landing PI
70	7	11	AVP7	8th landing PI
70	8	10	UP	Up arrow
70	9	9	DN	Down arrow
70	10	8		
70	11	7		

Appendix C: HFCB I/O MPH-I

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
01	0	18	LU11	Up Lantern 2nd Landing 2nd Car
01	1	17	LD11	Down Lantern 2nd Landing 2nd Car
01	2	16	LU10	Up Lantern 2nd Landing 1st Car
01	3	15	LD10	Down Lantern 2nd Landing 1st Car
01	4	14	1BU	2nd Landing Up Push Button
01	5	13	1BD	2nd Landing Down Push Button
01	6	12	LU01	Up Lantern 1st Landing 2nd Car
01	7	11	DFFS	Flashing fire sign
01	8	10	LU00	Up Lantern 1st Landing 1st Car
01	9	9	KSDBYP	Hall fire service switch bypass
01	10	8	0BU	1st Landing Up Push Button
01	11	7	KFEM	Hall fire service on
02	0	18	RLU11	Up Lantern 2nd Rear Landing 2nd Car
02	1	17	RLD11	Down Lantern 2nd Rear Landing 2nd Car
02	2	16	RLU10	Up Lantern 2nd Rear Landing 1st Car
02	3	15	RLD10	Down Lantern 2nd Rear Landing 1st Car
02	4	14	1BUR	2nd Rear Landing Up Push Button
02	5	13	1BDR	2nd Rear Landing Down Push Button
02	6	12	RLU01	Up Lantern 1st Rear Landing 2nd Car
02	7	11		
02	8	10	RLU00	Up Lantern 1st Rear Landing 1st Car
02	9	9		
02	10	8	0BUR	1st Rear Landing Up Push Button
02	11	7		
03	0	18	LU31	Up Lantern 4th Landing 2nd Car
03	1	17	LD31	Down Lantern 4th Landing 2nd Car
03	2	16	LU30	Up Lantern 4th Landing 1st Car
03	3	15	LD30	Down Lantern 4th Landing 1st Car
03	4	14	3BU	4th Landing Up Push Button
03	5	13	3BD	4th Landing Down Push Button
03	6	12	LU21	Up Lantern 3rd Landing 2nd Car
03	7	11	LD21	Down Lantern 3rd Landing 2nd Car
03	8	10	LU20	Up Lantern 3rd Landing 1st Car

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
03	9	9	LD20	Down Lantern 3rd Landing 1st Car
03	10	8	2BU	3rd Landing Up Push Button
03	11	7	2BD	3rd Landing Down Push Button
04	0	18	RLU31	Up Lantern 4th Rear Landing 2nd Car
04	1	17	RLD31	Down Lantern 4th Rear Landing 2nd Car
04	2	16	RLU30	Up Lantern 4th Rear Landing 1st Car
04	3	15	RLD30	Down Lantern 4th Rear Landing 1st Car
04	4	14	3BUR	4th Rear Landing Up Push Button
04	5	13	3BDR	4th Rear Landing Down Push Button
04	6	12	RLU21	Up Lantern 3rd Rear Landing 2nd Car
04	7	11	RLD21	Down Lantern 3rd Rear Landing 2nd Car
04	8	10	RLU20	Up Lantern 3rd Rear Landing 1st Car
04	9	9	RLD20	Down Lantern 3rd Rear Landing 1st Car
04	10	8	2BUR	3rd Rear Landing Up Push Button
04	11	7	2BDR	3rd Rear Landing Down Push Button
05	0	18	LU51	Up Lantern 6th Landing 2nd Car
05	1	17	LD51	Down Lantern 6th Landing 2nd Car
05	2	16	LU50	Up Lantern 6th Landing 1st Car
05	3	15	LD50	Down Lantern 6th Landing 1st Car
05	4	14	5BU	6th Landing Up Push Button
05	5	13	5BD	6th Landing Down Push Button
05	6	12	LU41	Up Lantern 5th Landing 2nd Car
05	7	11	LD41	Down Lantern 5th Landing 2nd Car
05	8	10	LU40	Up Lantern 5th Landing 1st Car
05	9	9	LD40	Down Lantern 5th Landing 1st Car
05	10	8	4BU	5th Landing Up Push Button
05	11	7	4BD	5th Landing Down Push Button
06	0	18	RLU51	Up Lantern 6th Rear Landing 2nd Car
06	1	17	RLD51	Down Lantern 6th Rear Landing 2nd Car
06	2	16	RLU50	Up Lantern 6th Rear Landing 1st Car
06	3	15	RLD50	Down Lantern 6th Rear Landing 1st Car
06	4	14	5BUR	6th Rear Landing Up Push Button
06	5	13	5BDR	6th Rear Landing Down Push Button
06	6	12	RLU41	Up Lantern 5th Rear Landing 2nd Car

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
06	7	11	RLD41	Down Lantern 5th Rear Landing 2nd Car
06	8	10	RLU40	Up Lantern 5th Rear Landing 1st Car
06	9	9	RLD40	Down Lantern 5th Rear Landing 1st Car
06	10	8	4BUR	5th Rear Landing Up Push Button
06	11	7	4BDR	5th Rear Landing Down Push Button
07	0	18		
07	1	17	LD71	Down Lantern 8th Landing 2nd Car
07	2	16		
07	3	15	LD70	Down Lantern 8th Landing 1st Car
07	4	14		
07	5	13	7BD	8th Landing Down Push Button
07	6	12	LU61	Up Lantern 7th Landing 2nd Car
07	7	11	LD61	Down Lantern 7th Landing 2nd Car
07	8	10	LU60	Up Lantern 7th Landing 1st Car
07	9	9	LD60	Down Lantern 7th Landing 1st Car
07	10	8	6BU	7th Landing Up Push Button
07	11	7	6BD	7th Landing Down Push Button
08	0	18		
08	1	17	RLD71	Down Lantern 8th Rear Landing 2nd Car
08	2	16		
08	3	15	RLD70	Down Lantern 8th Rear Landing 1st Car
08	4	14		
08	5	13	7BDR	8th Rear Landing Down Push Button
08	6	12	RLU61	Up Lantern 7th Rear Landing 2nd Car
08	7	11	RLD61	Down Lantern 7th Rear Landing 2nd Car
08	8	10	RLU60	Up Lantern 7th Rear Landing 1st Car
08	9	9	RLD60	Down Lantern 7th Rear Landing 1st Car
08	10	8	6BUR	7th Rear Landing Up Push Button
08	11	7	6BDR	7th Rear Landing Down Push Button
11	0	18	LU13	Up Lantern 2nd Landing 4th Car
11	1	17	LD13	Down Lantern 2nd Landing 4th Car
11	2	16	LU12	Up Lantern 2nd Landing 3rd Car
11	3	15	LD12	Down Lantern 2nd Landing 3rd Car
11	4	14	1BU	2nd Landing Up Push Button

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
11	5	13	1BD	2nd Landing Down Push Button
11	6	12	LU03	Up Lantern 1st Landing 4th Car
11	7	11		
11	8	10	LU02	Up Lantern 1st Landing 3rd Car
11	9	9		
11	10	8	0BU	1st Landing Up Push Button
11	11	7		
12	0	18	RLU13	Up Lantern 2nd Rear Landing 4th Car
12	1	17	RLD13	Down Lantern 2nd Rear Landing 4th Car
12	2	16	RLU12	Up Lantern 2nd Rear Landing 3rd Car
12	3	15	RLD12	Down Lantern 2nd Rear Landing 3rd Car
12	4	14	1BUR	2nd Rear Landing Up Push Button
12	5	13	1BDR	2nd Rear Landing Down Push Button
12	6	12	RLU03	Up Lantern 1st Rear Landing 4th Car
12	7	11		
12	8	10	RLU02	Up Lantern 1st Rear Landing 3rd Car
12	9	9		
12	10	8	0BUR	1st Rear Landing Up Push Button
12	11	7		
13	0	18	LU33	Up Lantern 4th Landing 4th Car
13	1	17	LD33	Down Lantern 4th Landing 4th Car
13	2	16	LU32	Up Lantern 4th Landing 3rd Car
13	3	15	LD32	Down Lantern 4th Landing 3rd Car
13	4	14	3BU	4th Landing Up Push Button
13	5	13	3BD	4th Landing Down Push Button
13	6	12	LU23	Up Lantern 3rd Landing 4th Car
13	7	11	LD23	Down Lantern 3rd Landing 4th Car
13	8	10	LU22	Up Lantern 3rd Landing 3rd Car
13	9	9	LD22	Down Lantern 3rd Landing 3rd Car
13	10	8	2BU	3rd Landing Up Push Button
13	11	7	2BD	3rd Landing Down Push Button
14	0	18	RLU33	Up Lantern 4th Rear Landing 4th Car
14	1	17	RLD33	Down Lantern 4th Rear Landing 4th Car
14	2	16	RLU32	Up Lantern 4th Rear Landing 3rd Car

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
14	3	15	RLD32	Down Lantern 4th Rear Landing 3rd Car
14	4	14	3BUR	4th Rear Landing Up Push Button
14	5	13	3BDR	4th Rear Landing Down Push Button
14	6	12	RLU23	Up Lantern 3rd Rear Landing 4th Car
14	7	11	RLD23	Down Lantern 3rd Rear Landing 4th Car
14	8	10	RLU22	Up Lantern 3rd Rear Landing 3rd Car
14	9	9	RLD22	Down Lantern 3rd Rear Landing 3rd Car
14	10	8	2BUR	3rd Rear Landing Up Push Button
14	11	7	2BDR	3rd Rear Landing Down Push Button
15	0	18	LU53	Up Lantern 6th Landing 4th Car
15	1	17	LD53	Down Lantern 6th Landing 4th Car
15	2	16	LU52	Up Lantern 6th Landing 3rd Car
15	3	15	LD52	Down Lantern 6th Landing 3rd Car
15	4	14	5BU	6th Landing Up Push Button
15	5	13	5BD	6th Landing Down Push Button
15	6	12	LU43	Up Lantern 5th Landing 4th Car
15	7	11	LD43	Down Lantern 5th Landing 4th Car
15	8	10	LU42	Up Lantern 5th Landing 3rd Car
15	9	9	LD42	Down Lantern 5th Landing 3rd Car
15	10	8	4BU	5th Landing Up Push Button
15	11	7	4BD	5th Landing Down Push Button
16	0	18	RLU53	Up Lantern 6th Rear Landing 4th Car
16	1	17	RLD53	Down Lantern 6th Rear Landing 4th Car
16	2	16	RLU52	Up Lantern 6th Rear Landing 3rd Car
16	3	15	RLD52	Down Lantern 6th Rear Landing 3rd Car
16	4	14	5BUR	6th Rear Landing Up Push Button
16	5	13	5BDR	6th Rear Landing Down Push Button
16	6	12	RLU43	Up Lantern 5th Rear Landing 4th Car
16	7	11	RLD43	Down Lantern 5th Rear Landing 4th Car
16	8	10	RLU42	Up Lantern 5th Rear Landing 3rd Car
16	9	9	RLD42	Down Lantern 5th Rear Landing 3rd Car
16	10	8	4BUR	5th Rear Landing Up Push Button
16	11	7	4BDR	5th Rear Landing Down Push Button
17	0	18		

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
17	1	17	LD73	Down Lantern 8th Landing 4th Car
17	2	16		
17	3	15	LD72	Down Lantern 8th Landing 3rd Car
17	4	14		
17	5	13	7BD	8th Landing Down Push Button
17	6	12	LU63	Up Lantern 7th Landing 4th Car
17	7	11	LD63	Down Lantern 7th Landing 4th Car
17	8	10	LU62	Up Lantern 7th Landing 3rd Car
17	9	9	LD62	Down Lantern 7th Landing 3rd Car
17	10	8	6BU	7th Landing Up Push Button
17	11	7	6BD	7th Landing Down Push Button
18	0	18		
18	1	17	RLD73	Down Lantern 8th Rear Landing 4th Car
18	2	16		
18	3	15	RLD72	Down Lantern 8th Rear Landing 3rd Car
18	4	14		
18	5	13	7BDR	8th Rear Landing Down Push Button
18	6	12	RLU63	Up Lantern 7th Rear Landing 4th Car
18	7	11	RLD63	Down Lantern 7th Rear Landing 4th Car
18	8	10	RLU62	Up Lantern 7th Rear Landing 3rd Car
18	9	9	RLD62	Down Lantern 7th Rear Landing 3rd Car
18	10	8	6BUR	7th Rear Landing Up Push Button
18	11	7	6BDR	7th Rear Landing Down Push Button
70	0	18	DN	Down PI - 1st Car
70	1	17	UP	Up PI - 1st Car
70	2	16	AVP00	1st Landing PI, 1st Car
70	3	15	AVP10	2nd Landing PI, 1st Car
70	4	14	AVP20	3rd Landing PI, 1st Car
70	5	13	AVP30	4th Landing PI, 1st Car
70	6	12	AVP40	5th Landing PI, 1st Car
70	7	11	AVP50	6th Landing PI, 1st Car
70	8	10	AVP60	7th Landing PI, 1st Car
70	9	9	AVP70	8th Landing PI, 1st Car
70	10	8		
70	11	7		

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
71	0	18	DN	Down PI - 2nd Car
71	1	17	UP	Up PI - 2nd Car
71	2	16	AVP01	1st Landing PI, 2nd Car
71	3	15	AVP11	2nd Landing PI, 2nd Car
71	4	14	AVP21	3rd Landing PI, 2nd Car
71	5	13	AVP31	4th Landing PI, 2nd Car
71	6	12	AVP41	5th Landing PI, 2nd Car
71	7	11	AVP51	6th Landing PI, 2nd Car
71	8	10	AVP61	7th Landing PI, 2nd Car
71	9	9	AVP71	8th Landing PI, 2nd Car
71	10	8		
71	11	7		
72	0	18	DN	Down PI - 3rd Car
72	1	17	UP	Up PI - 3rd Car
72	2	16	AVP02	1st Landing PI, 3rd Car
72	3	15	AVP12	2nd Landing PI, 3rd Car
72	4	14	AVP22	3rd Landing PI, 3rd Car
72	5	13	AVP32	4th Landing PI, 3rd Car
72	6	12	AVP42	5th Landing PI, 3rd Car
72	7	11	AVP52	6th Landing PI, 3rd Car
72	8	10	AVP62	7th Landing PI, 3rd Car
72	9	9	AVP72	8th Landing PI, 3rd Car
72	10	8		
72	11	7		
73	0	18	DN	Down PI - 4th Car
73	1	17	UP	Up PI - 4th Car
73	2	16	AVP03	1st Landing PI, 4th Car
73	3	15	AVP13	2nd Landing PI, 4th Car
73	4	14	AVP23	3rd Landing PI, 4th Car
73	5	13	AVP33	4th Landing PI, 4th Car
73	6	12	AVP43	5th Landing PI, 4th Car
73	7	11	AVP53	6th Landing PI, 4th Car
73	8	10	AVP63	7th Landing PI, 4th Car
73	9	9	AVP73	8th Landing PI, 4th Car
73	10	8		

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
73	11	7		
78	0	18	KEMP0	Emerg. Power Manual Selection Switch 1st Car
78	1	17	KEMP1	Emerg. Power Manual Selection Switch 2nd Car
78	2	16		
78	3	15		
78	4	14	DEMP0	Emerg. Power Lamps 1st Car
78	5	13	DEMP1	Emerg. Power Lamps 2nd Car
78	6	12		
78	7	11		
78	8	10		
78	9	9	FEED0	Manual Override Switch 0
78	10	8		
78	11	7		
79	0	18		
79	1	17		
79	2	16	KEMP2	Emerg. Power Manual Selection Switch 3rd Car
79	3	15	KEMP3	Emerg. Power Manual Selection Switch 4th Car
79	4	14		
79	5	13		
79	6	12	DEMP2	Emerg. Power Lamps 3rd Car
79	7	11	DEMP3	Emerg. Power Lamps 4th Car
79	8	10		
79	9	9	FEED1	Manual Override Switch 1
79	10	8		
79	11	7		
7E	0	18	MLD00	Fire Service 1st Car Main Lobby Door Open
7E	1	17	MLD01	Fire Service 2nd Car Main Lobby Door Open

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
7E	2	16	MLD02	Fire Service 3rd Car Main Lobby Door Open
7E	3	15	MLD03	Fire Service 4th Car Main Lobby Door Open
7E	4	14	ALD00	Fire Service 1st Car Alternate Lobby Door Open
7E	5	13	ALD01	Fire Service 2nd Car Alternate Lobby Door Open
7E	6	12	ALD02	Fire Service 3rd Car Alternate Lobby Door Open
7E	7	11	ALD03	Fire Service 4th Car Alternate Lobby Door Open
7E	8	10	FFS	Flashing Fire Sign
7E	9	9		
7E	10	8		
7E	11	7	ASD	Alternate Lobby Smoke Detector (Detroit)

Appendix D: FCB I/O MPH-II

FCB Board:	Bit #:	Pin #:	Signal:	Description:
00	0	18	DTONE	Car Chime
00	1	17		
00	2	16	KTS1	Front Upper Safety Ray
00	3	15	KTS2	Front Lower Safety Ray
00	4	14	KDOB	Front Door Open Button
00	5	13	KHEM	Hospital Emergency / Independent Service
00	6	12	KDOL	Door Open Limit
00	7	11	KDCL	Door Close Limit
00	8	10	DOPEN	Door Opening
00	9	9	DCLOSE	Door Closing
00	10	8	DNUDGE	Door Nudging
00	11	7	KSTE	Safety Edge
01	0	18	KLU	Level Up
01	1	17	KLD	Level Down
01	2	16	KHU	Up slowdown
01	3	15	KHD	Down slowdown
01	4	14	CLU	Cab Lantern Up
01	5	13	CLD	Cab Lantern Down
01	6	12	0B	1st Landing Front Car Call Button
01	7	11	1B	2nd Landing Front Car Call Button
01	8	10	2B	3rd Landing Front Car Call Button
01	9	9	3B	4th Landing Front Car Call Button
01	10	8	KTSA	Safety Ray Cutout Switch
01	11	7	KDCB	Front Door Close Button
02	0	18	KFCR	Fireman's Call Cancel Button
02	1	17	KFCMCN	Phase 2 Fire Service Switch - ON
02	2	16	KHOLD	Phase 2 Fire Service Switch - HOLD
02	3	15	FIRELT	Fire Light
02	4	14	KHCS	Handicap Single Trip Push Button
02	5	13	2BR	3rd Rear Landing Car Call Button
02	6	12	3BR	4th Rear Landing Car Call Button
02	7	11		

FCB Board:	Bit #:	Pin #:	Signal:	Description:
02	8	10	4B	5th Landing Front Car Call Button
02	9	9	5B	6th Landing Front Car Call Button
02	10	8	6B	7th Landing Front Car Call Button
02	11	7	7B	8th Landing Front Car Call Button
03	0	18	0BR	1st Rear Landing Car Call Button
03	1	17	1BR	2nd Rear Landing Car Call Button
03	2	16	KTS1R	Upper Rear Safety Ray
03	3	15	KTS2R	Lower Rear Safety Ray
03	4	14	KDOBR	Rear Door Open Push Button
03	5	13	KDCBR	Rear Door Close Push Button
03	6	12	KDOLR	Rear Door Open Limit
03	7	11	KDCLR	Rear Door Close Limit
03	8	10	DOPENR	Door Opening Rear
03	9	9	DCLOSER	Door Closing Rear
03	10	8	DNUDGER	Door Nudging Rear
03	11	7	KSTER	Safety Ray Rear
04	0	18	CS0	1st Cutout Switch
04	1	17	CS1	2nd Cutout Switch
04	2	16	CS2	3rdt Cutout Switch
04	3	15	CS3	4th Cutout Switch
04	4	14	CS4	5th Cutout Switch
04	5	13	CS5	6th Cutout Switch
04	6	12	CS6	7th Cutout Switch
04	7	11	CS7	8th Cutout Switch
04	8	10	CS8	9th Cutout Switch
04	9	9	CS9	10th Cutout Switch
04	10	8	CS10	11th Cutout Switch
04	11	7	CS11	12th Cutout Switch
05	0	18	0B	1st Landing Front Car Call Button
05	1	17	1B	2nd Landing Front Car Call Button
05	2	16	2B	3rd Landing Front Car Call Button
05	3	15	3B	4th Landing Front Car Call Button
05	4	14	4B	5th Landing Front Car Call Button
05	5	13	5B	6th Landing Front Car Call Button

FCB Board:	Bit #:	Pin #:	Signal:	Description:
05	6	12	6B	7th Landing Front Car Call Button
05	7	11	7B	8th Landing Front Car Call Button
05	8	10	CLU	Cab Lantern Up
05	9	9	CLD	Cab Lantern Down
05	10	8	KDOB	Door Open Push Button
05	11	7	KDCB	Door Close Push Button
06	0	18	0BR	1st Rear Landing Car Call Button
06	1	17	1BR	2nd Rear Landing Car Call Button
06	2	16	2BR	3rd Rear Landing Car Call Button
06	3	15	3BR	4th Rear Landing Car Call Button
06	4	14		
06	5	13		
06	6	12		
06	7	11		
06	8	10		
06	9	9		
06	10	8	KDOBR	Rear Door Open Button
06	11	7	KDCBR	Rear Door Close Button
70	0	18	DN	Down PI
70	1	17	UP	Up PI
70	2	16	AVP0	1st Landing
70	3	15	AVP1	2nd Landing
70	4	14	AVP2	3rd Landing
70	5	13	AVP3	4th Landing
70	6	12	AVP4	5th Landing
70	7	11	AVP5	6th Landing
70	8	10	AVP6	7th Landing
70	9	9	AVP7	8th Landing
70	10	8		
70	11	7		

Appendix E: HFCB I/O MPH-II

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
01	0	18	LU11	Up Lantern 2nd Landing 2nd Car
01	1	17	LD11	Down Lantern 2nd Landing 2nd Car
01	2	16	LU10	Up Lantern 2nd Landing 1st Car
01	3	15	LD10	Down Lantern 2nd Landing 1st Car
01	4	14	1BU	2nd Landing Up Push Button
01	5	13	1BD	2nd Landing Down Push Button
01	6	12	LU01	Up Lantern 1st Landing 2nd Car
01	7	11		
01	8	10	LU00	Up Lantern 1st Landing 1st Car
01	9	9		
01	10	8	0BU	1st Landing Up Push Button
01	11	7		
02	0	18	RLU11	Up Lantern 2nd Rear Landing 2nd Car
02	1	17	RLD11	Down Lantern 2nd Rear Landing 2nd Car
02	2	16	RLU10	Up Lantern 2nd Rear Landing 1st Car
02	3	15	RLD10	Down Lantern 2nd Rear Landing 1st Car
02	4	14	1BUR	2nd Rear Landing Up Push Button
02	5	13	1BDR	2nd Rear Landing Down Push Button
02	6	12	RLU01	Up Lantern 1st Rear Landing 2nd Car
02	7	11		
02	8	10	RLU00	Up Lantern 1st Rear Landing 1st Car
02	9	9		
02	10	8	0BUR	1st Rear Landing Up Push Button
02	11	7		
03	0	18	LU31	Up Lantern 4th Landing 2nd Car
03	1	17	LD31	Down Lantern 4th Landing 2nd Car
03	2	16	LU30	Up Lantern 4th Landing 1st Car
03	3	15	LD30	Down Lantern 4th Landing 1st Car
03	4	14	3BU	4th Landing Up Push Button
03	5	13	3BD	4th Landing Down Push Button
03	6	12	LU21	Up Lantern 3rd Landing 2nd Car
03	7	11	LD21	Down Lantern 3rd Landing 2nd Car
03	8	10	LU20	Up Lantern 3rd Landing 1st Car

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
03	9	9	LD20	Down Lantern 3rd Landing 1st Car
03	10	8	2BU	3rd Landing Up Push Button
03	11	7	2BD	3rd Landing Down Push Button
04	0	18	RLU31	Up Lantern 4th Rear Landing 2nd Car
04	1	17	RLD31	Down Lantern 4th Rear Landing 2nd Car
04	2	16	RLU30	Up Lantern 4th Rear Landing 1st Car
04	3	15	RLD30	Down Lantern 4th Rear Landing 1st Car
04	4	14	3BUR	4th Rear Landing Up Push Button
04	5	13	3BDR	4th Rear Landing Down Push Button
04	6	12	RLU21	Up Lantern 3rd Rear Landing 2nd Car
04	7	11	RLD21	Down Lantern 3rd Rear Landing 2nd Car
04	8	10	RLU20	Up Lantern 3rd Rear Landing 1st Car
04	9	9	RLD20	Down Lantern 3rd Rear Landing 1st Car
04	10	8	2BUR	3rd Rear Landing Up Push Button
04	11	7	2BDR	3rd Rear Landing Down Push Button
05	0	18	LU51	Up Lantern 6th Landing 2nd Car
05	1	17	LD51	Down Lantern 6th Landing 2nd Car
05	2	16	LU50	Up Lantern 6th Landing 1st Car
05	3	15	LD50	Down Lantern 6th Landing 1st Car
05	4	14	5BU	6th Landing Up Push Button
05	5	13	5BD	6th Landing Down Push Button
05	6	12	LU41	Up Lantern 5th Landing 2nd Car
05	7	11	LD41	Down Lantern 5th Landing 2nd Car
05	8	10	LU40	Up Lantern 5th Landing 1st Car
05	9	9	LD40	Down Lantern 5th Landing 1st Car
05	10	8	4BU	5th Landing Up Push Button
05	11	7	4BD	5th Landing Down Push Button
06	0	18	RLU51	Up Lantern 6th Rear Landing 2nd Car
06	1	17	RLD51	Down Lantern 6th Rear Landing 2nd Car
06	2	16	RLU50	Up Lantern 6th Rear Landing 1st Car
06	3	15	RLD50	Down Lantern 6th Rear Landing 1st Car
06	4	14	5BUR	6th Rear Landing Up Push Button
06	5	13	5BDR	6th Rear Landing Down Push Button
06	6	12	RLU41	Up Lantern 5th Rear Landing 2nd Car

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
06	7	11	RLD41	Down Lantern 5th Rear Landing 2nd Car
06	8	10	RLU40	Up Lantern 5th Rear Landing 1st Car
06	9	9	RLD40	Down Lantern 5th Rear Landing 1st Car
06	10	8	4BUR	5th Rear Landing Up Push Button
06	11	7	4BDR	5th Rear Landing Down Push Button
07	0	18		
07	1	17	LD71	Down Lantern 8th Landing 2nd Car
07	2	16		
07	3	15	LD70	Down Lantern 8th Landing 1st Car
07	4	14		
07	5	13	7BD	8th Landing Down Push Button
07	6	12	LU61	Up Lantern 7th Landing 2nd Car
07	7	11	LD61	Down Lantern 7th Landing 2nd Car
07	8	10	LU60	Up Lantern 7th Landing 1st Car
07	9	9	LD60	Down Lantern 7th Landing 1st Car
07	10	8	6BU	7th Landing Up Push Button
07	11	7	6BD	7th Landing Down Push Button
08	0	18		
08	1	17	RLD71	Down Lantern 8th Rear Landing 2nd Car
08	2	16		
08	3	15	RLD70	Down Lantern 8th Rear Landing 1st Car
08	4	14		
08	5	13	7BDR	8th Rear Landing Down Push Button
08	6	12	RLU61	Up Lantern 7th Rear Landing 2nd Car
08	7	11	RLD61	Down Lantern 7th Rear Landing 2nd Car
08	8	10	RLU60	Up Lantern 7th Rear Landing 1st Car
08	9	9	RLD60	Down Lantern 7th Rear Landing 1st Car
08	10	8	6BUR	7th Rear Landing Up Push Button
08	11	7	6BDR	7th Rear Landing Down Push Button
11	0	18	LU13	Up Lantern 2nd Landing 4th Car
11	1	17	LD13	Down Lantern 2nd Landing 4th Car
11	2	16	LU12	Up Lantern 2nd Landing 3rd Car
11	3	15	LD12	Down Lantern 2nd Landing 3rd Car
11	4	14	1BU	2nd Landing Up Push Button

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
11	5	13	1BD	2nd Landing Down Push Button
11	6	12	LU03	Up Lantern 1st Landing 4th Car
11	7	11		
11	8	10	LU02	Up Lantern 1st Landing 3rd Car
11	9	9		
11	10	8	0BU	1st Landing Up Push Button
11	11	7		
12	0	18	RLU13	Up Lantern 2nd Rear Landing 4th Car
12	1	17	RLD13	Down Lantern 2nd Rear Landing 4th Car
12	2	16	RLU12	Up Lantern 2nd Rear Landing 3rd Car
12	3	15	RLD12	Down Lantern 2nd Rear Landing 3rd Car
12	4	14	1BUR	2nd Rear Landing Up Push Button
12	5	13	1BDR	2nd Rear Landing Down Push Button
12	6	12	RLU03	Up Lantern 1st Rear Landing 4th Car
12	7	11		
12	8	10	RLU02	Up Lantern 1st Rear Landing 3rd Car
12	9	9		
12	10	8	0BUR	1st Rear Landing Up Push Button
12	11	7		
13	0	18	LU33	Up Lantern 4th Landing 4th Car
13	1	17	LD33	Down Lantern 4th Landing 4th Car
13	2	16	LU32	Up Lantern 4th Landing 3rd Car
13	3	15	LD32	Down Lantern 4th Landing 3rd Car
13	4	14	3BU	4th Landing Up Push Button
13	5	13	3BD	4th Landing Down Push Button
13	6	12	LU23	Up Lantern 3rd Landing 4th Car
13	7	11	LD23	Down Lantern 3rd Landing 4th Car
13	8	10	LU22	Up Lantern 3rd Landing 3rd Car
13	9	9	LD22	Down Lantern 3rd Landing 3rd Car
13	10	8	2BU	3rd Landing Up Push Button
13	11	7	2BD	3rd Landing Down Push Button
14	0	18	RLU33	Up Lantern 4th Rear Landing 4th Car
14	1	17	RLD33	Down Lantern 4th Rear Landing 4th Car
14	2	16	RLU32	Up Lantern 4th Rear Landing 3rd Car

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
14	3	15	RLD32	Down Lantern 4th Rear Landing 3rd Car
14	4	14	3BUR	4th Rear Landing Up Push Button
14	5	13	3BDR	4th Rear Landing Down Push Button
14	6	12	RLU23	Up Lantern 3rd Rear Landing 4th Car
14	7	11	RLD23	Down Lantern 3rd Rear Landing 4th Car
14	8	10	RLU22	Up Lantern 3rd Rear Landing 3rd Car
14	9	9	RLD22	Down Lantern 3rd Rear Landing 3rd Car
14	10	8	2BUR	3rd Rear Landing Up Push Button
14	11	7	2BDR	3rd Rear Landing Down Push Button
15	0	18	LU53	Up Lantern 6th Landing 4th Car
15	1	17	LD53	Down Lantern 6th Landing 4th Car
15	2	16	LU52	Up Lantern 6th Landing 3rd Car
15	3	15	LD52	Down Lantern 6th Landing 3rd Car
15	4	14	5BU	6th Landing Up Push Button
15	5	13	5BD	6th Landing Down Push Button
15	6	12	LU43	Up Lantern 5th Landing 4th Car
15	7	11	LD43	Down Lantern 5th Landing 4th Car
15	8	10	LU42	Up Lantern 5th Landing 3rd Car
15	9	9	LD42	Down Lantern 5th Landing 3rd Car
15	10	8	4BU	5th Landing Up Push Button
15	11	7	4BD	5th Landing Down Push Button
16	0	18	RLU53	Up Lantern 6th Rear Landing 4th Car
16	1	17	RLD53	Down Lantern 6th Rear Landing 4th Car
16	2	16	RLU52	Up Lantern 6th Rear Landing 3rd Car
16	3	15	RLD52	Down Lantern 6th Rear Landing 3rd Car
16	4	14	5BUR	6th Rear Landing Up Push Button
16	5	13	5BDR	6th Rear Landing Down Push Button
16	6	12	RLU43	Up Lantern 5th Rear Landing 4th Car
16	7	11	RLD43	Down Lantern 5th Rear Landing 4th Car
16	8	10	RLU42	Up Lantern 5th Rear Landing 3rd Car
16	9	9	RLD42	Down Lantern 5th Rear Landing 3rd Car
16	10	8	4BUR	5th Rear Landing Up Push Button
16	11	7	4BDR	5th Rear Landing Down Push Button

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
17	0	18		
17	1	17	LD73	Down Lantern 8th Landing 4th Car
17	2	16		
17	3	15	LD72	Down Lantern 8th Landing 3rd Car
17	4	14		
17	5	13	7BD	8th Landing Down Push Button
17	6	12	LU63	Up Lantern 7th Landing 4th Car
17	7	11	LD63	Down Lantern 7th Landing 4th Car
17	8	10	LU62	Up Lantern 7th Landing 3rd Car
17	9	9	LD62	Down Lantern 7th Landing 3rd Car
17	10	8	6BU	7th Landing Up Push Button
17	11	7	6BD	7th Landing Down Push Button
18	0	18		
18	1	17	RLD73	Down Lantern 8th Rear Landing 4th Car
18	2	16		
18	3	15	RLD72	Down Lantern 8th Rear Landing 3rd Car
18	4	14		
18	5	13	7BDR	8th Rear Landing Down Push Button
18	6	12	RLU63	Up Lantern 7th Rear Landing 4th Car
18	7	11	RLD63	Down Lantern 7th Rear Landing 4th Car
18	8	10	RLU62	Up Lantern 7th Rear Landing 3rd Car
18	9	9	RLD62	Down Lantern 7th Rear Landing 3rd Car
18	10	8	6BUR	7th Rear Landing Up Push Button
18	11	7	6BDR	7th Rear Landing Down Push Button
70	0	18	DN	Down PI - 1st Car
70	1	17	UP	Up PI - 1st Car
70	2	16	AVP00	1st Landing PI, 1st Car
70	3	15	AVP10	2nd Landing PI, 1st Car
70	4	14	AVP20	3rd Landing PI, 1st Car
70	5	13	AVP30	4th Landing PI, 1st Car
70	6	12	AVP40	5th Landing PI, 1st Car
70	7	11	AVP50	6th Landing PI, 1st Car
70	8	10	AVP60	7th Landing PI, 1st Car
70	9	9	AVP70	8th Landing PI, 1st Car
70	10	8		

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
70	11	7		
71	0	18	DN	Down PI - 2nd Car
71	1	17	UP	Up PI - 2nd Car
71	2	16	AVP01	1st Landing PI, 2nd Car
71	3	15	AVP11	2nd Landing PI, 2nd Car
71	4	14	AVP21	3rd Landing PI, 2nd Car
71	5	13	AVP31	4th Landing PI, 2nd Car
71	6	12	AVP41	5th Landing PI, 2nd Car
71	7	11	AVP51	6th Landing PI, 2nd Car
71	8	10	AVP61	7th Landing PI, 2nd Car
71	9	9	AVP71	8th Landing PI, 2nd Car
71	10	8		
71	11	7		
72	0	18	DN	Down PI - 3rd Car
72	1	17	UP	Up PI - 3rd Car
72	2	16	AVP02	1st Landing PI, 3rd Car
72	3	15	AVP12	2nd Landing PI, 3rd Car
72	4	14	AVP22	3rd Landing PI, 3rd Car
72	5	13	AVP32	4th Landing PI, 3rd Car
72	6	12	AVP42	5th Landing PI, 3rd Car
72	7	11	AVP52	6th Landing PI, 3rd Car
72	8	10	AVP62	7th Landing PI, 3rd Car
72	9	9	AVP72	8th Landing PI, 3rd Car
72	10	8		
72	11	7		
73	0	18	DN	Down PI - 4th Car
73	1	17	UP	Up PI - 4th Car
73	2	16	AVP03	1st Landing PI, 4th Car
73	3	15	AVP13	2nd Landing PI, 4th Car
73	4	14	AVP23	3rd Landing PI, 4th Car
73	5	13	AVP33	4th Landing PI, 4th Car
73	6	12	AVP43	5th Landing PI, 4th Car
73	7	11	AVP53	6th Landing PI, 4th Car
73	8	10	AVP63	7th Landing PI, 4th Car

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
73	9	9	AVP73	8th Landing PI, 4th Car
73	10	8		
73	11	7		
78	0	18	KEMP0	Emerg. Power Manual Selection Switch 1st Car
78	1	17	KEMP1	Emerg. Power Manual Selection Switch 2nd Car
78	2	16		
78	3	15		
78	4	14	DEMP0	Emerg. Power Lamps 1st Car
78	5	13	DEMP1	Emerg. Power Lamps 2nd Car
78	6	12		
78	7	11		
78	8	10		
78	9	9		Manual Override Switch 0
78	10	8		
78	11	7		
79	0	18		
79	1	17		
79	2	16	KEMP2	Emerg. Power Manual Selection Switch 3rd Car
79	3	15	KEMP3	Emerg. Power Manual Selection Switch 4th Car
79	4	14		
79	5	13		
79	6	12	DEMP2	Emerg. Power Lamps 3rd Car
79	7	11	DEMP3	Emerg. Power Lamps 4th Car
79	8	10		
79	9	9		Manual Override Switch 1
79	10	8		
79	11	7		
7E	0	18	MLD00	Fire Service 1st Car Main Lobby Door Open

HFCB Board:	Bit #:	Pin #:	Signal:	Description:
7E	1	17	MLD01	Fire Service 2nd Car Main Lobby Door Open
7E	2	16	MLD02	Fire Service 3rd Car Main Lobby Door Open
7E	3	15	MLD03	Fire Service 4th Car Main Lobby Door Open
7E	4	14	ALD00	Fire Service 1st Car Alternate Lobby Door Open
7E	5	13	ALD01	Fire Service 2nd Car Alternate Lobby Door Open
7E	6	12	ALD02	Fire Service 3rd Car Alternate Lobby Door Open
7E	7	11	ALD03	Fire Service 4th Car Alternate Lobby Door Open
7E	8	10	FFS	Flashing Fire Sign
7E	9	9		
7E	10	8		
7E	11	7	ASD	Alternate Lobby Smoke Detector (Detroit)

Appendix F: Contract Adjustments

Adjustment Title:		
Door Open Time	Floor 0 Digital PI Most Significant Digit	Rear Call Lockout Switch 0
Short Door Open Time	Floor 0 Digital PI Least Significant Digit	Rear Call Lockout Switch 1
Stall Time	Floor 1 Digital PI Most Significant Digit	Rear Call Lockout Switch 2
Nudging	Floor 1 Digital PI Least Significant Digit	Rear Call Lockout Switch 3
Nudging Time	Floor 2 Digital PI Most Significant Digit	Rear Call Lockout Switch 4
Momentary Door Open Push Button	Floor 2 Digital PI Least Significant Digit	Rear Call Lockout Switch 5
Main Floor	Floor 3 Digital PI Most Significant Digit	Rear Call Lockout Switch 6
Main Traffic Time	Floor 3 Digital PI Least Significant Digit	Rear Call Lockout Switch 7
Call Entry Tone	Floor 4 Digital PI Most Significant Digit	Rear Call Lockout Switch 8
Car Traffic Time	Floor 4 Digital PI Least Significant Digit	Rear Call Lockout Switch 9
Continuous Door Open Push Button	Floor 5 Digital PI Most Significant Digit	Rear Call Lockout Switch 10
Corridor Traffic Time	Floor 5 Digital PI Least Significant Digit	Rear Call Lockout Switch 11
Off At Return Floor	Floor 6 Digital PI Most Significant Digit	1st Button Access Digit
Two Alternate Parking Landings	Floor 6 Digital PI Least Significant Digit	2nd Button Access Digit
Lobby DOB Per Car	Floor 7 Digital PI Most Significant Digit	3rd Button Access Digit
Lobby Door Open	Floor 7 Digital PI Least Significant Digit	Emergency Power Car 1
2nd Alternate Parking Floor	Front Call Lockout Switch 0	Emergency Power Car 2
Parking Door Cycle	Front Call Lockout Switch 1	Emergency Power Car 3

Adjustment Title:		
Parking Floor	Front Call Lockout Switch 2	Emergency Power Car 4
Always Present DOB	Front Call Lockout Switch 3	
Emergency Power 2 Car Service	Front Call Lockout Switch 4	
Front Door Operator Type	Front Call Lockout Switch 5	
Rear Door Operator Type	Front Call Lockout Switch 6	
Fire Service Alternate Landing	Front Call Lockout Switch 7	
Fire Service Dispatch Floor	Front Call Lockout Switch 8	
Fire Service Call Cancel Button	Front Call Lockout Switch 9	
Fire Service Operation	Front Call Lockout Switch 10	
Flashing Sign	Front Call Lockout Switch 11	