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SECTION 5 –CONTROLLER COMMUNICATION INTRODUCTION

This section describes how to communicate, or “interface” with the **Futura™** controller via either a PC or a terminal (Human Interface). This section is critical in setting up the controller and performing diagnostics. We recommend that you read it over carefully. If you have any questions about any part of this section, please call CEC Technical Support.

This manual uses several operative terms, which describe various ways information is transferred between the user and the system. They are called: error code, command, input, output, parameter, bit, and device. In some cases, the terms are interchangeable, but most often each refers to a specific type of informational exchange between the system and the user, or within the system for serving different purposes.

ERROR CODE: A failure (also called a fault or error) status indicator, which is returned by the system in order to locate the source/resolution of a problem occurrence. These codes are programmed into the system by the manufacturer (i.e.: Error code 96 signifies that the SPU board tach was not in UP position while car was running UP).

COMMAND: A request entered (or “input”) by the user (via the computer keyboard) which orders the controller to perform a specific function (i.e.: <RFL> asks the system to Reset all the Faults). Commands must be recognizable to the system in order to trigger a response, and therefore are written exclusively in the language of the system by the manufacturer. Various tables of commands and their descriptions are presented in this section, and most commands in this manual are presented in a specific way for easy identification and input.

INPUT: Data entered by the user or from external mechanical devices (i.e.: switches, etc.) which is necessary for the system to process information and execute commands.

OUTPUT: Data (signals) sent from the CPU to the mechanical devices to (de)activate.

PARAMETER: A variable entered (or “input”) by the user and assigned a value, which refers to a specific function of the system. Parameters are used for setting limits, timers, etc. (i.e.: <CDT = 5> is what is entered to set the Car Call Door Timer at 5 seconds)

BIT: A variable setting, which determines enabling, or disabling of specific features in the system.

DEVICE: Generic term usually referring to a physical/mechanical component (i.e.: board, switch, or other mechanical equipment) monitored by and used to execute/trigger input and output signals.

Note: *We recommend that a list of the parameter and bit settings be recorded and maintained for each individual controller as each initial controller setup is completed. This list will be helpful in the event the settings are accidentally changed or lost. We also recommend that any person placing a technical support call to CEC have this list available.*

Terminal Mode Operation

Terminal Mode operation allows the user to interface directly with all the parameters and commands of the controller. One does not need the **Futura™ WIZARD** interactive tool to operate exclusively on terminal mode. A PC with a serial port and any regular terminal program can be used to interface with the controller.

Your computer or terminal must be connected to P11 (USER) RS-232 port located on the bottom left side of the SPU Link Board. The following communication parameter settings must be available:

Baud Rate	19200
Word Length	8
Parity	No Parity
Stop Bit	1



Wizard Mode Operation

The *Futura*[™] **WIZARD** is a PC-based visual interface, which operates under the Microsoft Windows operating system. The information is grouped logically, permitting easy navigation through the menus.

The **WIZARD** permits interfacing with all controller functions, diagnostics, and uploading of software (whereas the Terminal mode only permits manipulation of certain parameters, which are accessible through Terminal mode). Door timing setup, diagnostics, or downloading new software is accomplished by selecting, with the mouse, the appropriate *icon*. However, full Terminal operation is also available from within the **WIZARD**

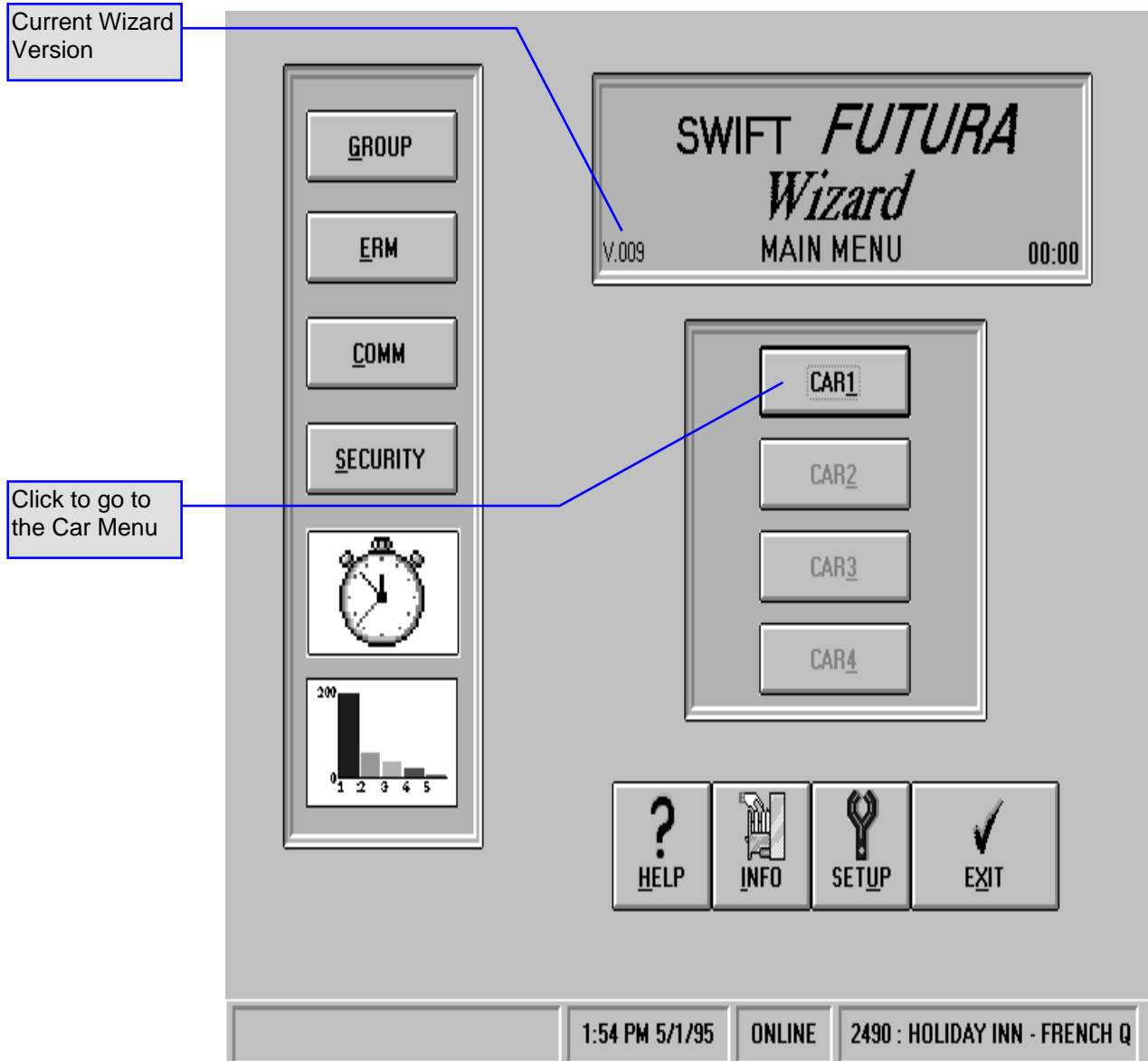


Figure 5-1

For comprehensive instruction on the **WIZARD**, please see the *Futura*[™] **WIZARD** Startup Guide.



The **WIZARD** software is provided for **Futura™** installations. This **Futura™** interactive tool is based on a regular PC or a notebook PC with integral mouse control (preferred) and requires a standard RS-232 serial communication port (usually COMM 1) to operate. The reason why an integral mouse control is preferred is because notebooks without the integral port use the RS-232 serial communication port for the mouse. The **WIZARD** is an optional item, available in color or monochrome. The online HELP system for this visual interface is provided with the **WIZARD** software.

Controller Commands & Parameters

Line Editing And Control Characters

The examples shown in this chapter are based on the assumption that no typing errors occur. The **Futura™** Operating System provides line-editing controls to permit you to correct typing mistakes.

You can use specific characters to control and edit terminal input. Some of these characters correspond to single keys on your terminal (such as <enter ↵>/Carriage RETURN or <backspace ←> /DELETE). Any time it is necessary to delete a character, use the backspace key; the delete key is not used on the **Futura™**. For others, called control characters, you must hold down the <ctrl> key while also pressing an alphabetical key. The **Futura™** Operating System recognizes control/edit characters as follows:

<enter ↵>

Terminates the current line and executes the command.

<backspace ←>

Deletes the previous character in the input line. Each execution of the Backspace key (←) removes a character from the screen and moves the cursor back to that position. Used in place of delete key.

<ctrl>+<R>

If the current line is not empty, this command reprints the line with editing performed. If it is empty, it reprints the previous line and executes it.

<ctrl>+<X>

Discards the current line: echoes a pound sign (#) followed by a carriage return/line feed.

<ctrl>+<S>

Places the terminal in stopped mode (stops output). This feature can be used to pause or freeze the display when viewing scrolling data. You can resume output without loss of data by entering <ctrl> +<Q>.

<ctrl>+<Q>

Resumes output mode. (See <ctrl>+<S>)

<ctrl>+<Z>

Aborts output to the terminal. This feature can be used to stop scrolling data on the display and return to the terminal prompt.

Power-Up or Reset Message Sequence

When power is applied to the SPU chassis, the CPU board boots up invoking a System Confidence Test (**SCT**). This confidence test will display its results on the terminal through the P15 USER port. The normal power-up or reset message sequence is shown in the example below. A GO or NO GO status indicates whether or not the test was successful. If any (except the load weigher or diagnostic VGA) of these tests fail, the processor will not enter into the control mode.

The RAM Memory and FLASH Memory (EEPROM) tests are associated with devices on the CPU board. If the FLASH test fails, it probably indicates a **checksum** error or invalid job parameter(s).



FUTURA 5434-1 Car # 1)	
Software Version 0.1	
System Confidence Test	
TEST	STATUS
Memory (CMOS RAM)	GO
Battery Test	GO
LCD Display	GO
Job Configuration	GO
I/O Configuration	GO
Analog Load Weigher	GO
EEPROM (Car Parameters)	GO
EEPROM (Group Parameters)	GO
WAIT...Initializing Drive	
Enter Password >	
On Line	

Figure 5-2 System Confidence Test Screen (No Failure)

When new software is installed in the car controller, it may be necessary to initialize the FLASH (EEPROM). To determine if the FLASH requires initialization, check the "Status" in the System Confidence Test (SCT) for "No EEPROM". (See System Confidence Screen below.) Check both the "FLASH (Car Parameters)" and "FLASH (Group Parameters)" lines. If status is "No EEPROM", then the FLASH must be initialized.

FUTURA 5434-1 Car # 1)	
Software Version 0.1	
System Confidence Test	
TEST	STATUS
Memory (CMOS RAM)	GO
Battery Test	GO
LCD Display	GO
Job Configuration	GO
I/O Configuration	GO
Analog Load Weigher	GO
EEPROM (Car Parameters)	NO-GO
### EEPROM NO EEPROM	NO-GO
WAIT...Initializing Drive	
Enter Password >	
On Line	

Figure 5-3 System Confidence Test Screen (Flash Memory Failure)

Initialize FLASH (Car parameters)

Perform the following steps (Terminal Mode only):

1. Get Car Prompt: Logon as <HUDSON.BAY> <enter ↵>
2. Enter <EPI2374> to initialize the RAM memory.
3. Additional parameter adjustments may be needed. Enter <GET> to update the RAM. If any parameters require adjustment, a message will be displayed naming the parameter. A value is entered for this parameter and steps 2 and 3 are repeated. If after entering <GET> your response is "OK", then you have successfully completed the initialization of FLASH (Car Parameters).
4. Power down and Power up SPU. Re-log the System password. If the car has been previously adjusted, parameters saved and the EEPROM data has failed on boot-up, the screen will display C# 0>. To attempt to recover parameters, follow steps 5 through 7.



5. Logon as <HUDSON.BAY> <enter>
6. Type in EPI1701 and press enter.
7. Type in GET and press Enter to read the data into the RAM. Any parameters with errors will be displayed.
8. Correct the individual parameter then enter <WRT> <enter>. Repeat until you receive a response of "OK" indicating that all parameters are fine. If there were more than 5 parameters with errors, it would be better to re-initialize the EEPROM with the EPI2374 command and start over at step1.

Initialize Flash (Group Parameters)

Perform the following steps in terminal mode only.

1. Get Car Prompt: Logon as <HUDSON.BAY> <enter ↵>
2. Go to Group prompt: Enter <GRP>
3. Enter <EPI2374> to initialize the EEPROM memory.
4. Additional parameter adjustments may be needed. Enter <GET> to update the RAM. If any parameters require adjustment, a message will appear naming the parameter. Enter a value for this parameter and repeat steps 2 and 3. If after entering <GET> your response is "OK," you have successfully initialized FLASH (Group Parameters).
5. To return to the Car prompt enter <CAR>.
6. Power down and Power up SPU. Re-log password.

Log-On

When prompted for the password, type in the system password, then <enter ↵> (see Note). Each character you type will be displayed as an asterisk on the terminal screen for security. It is important that you enter the password carefully. enter the password incorrectly, the system will prompt you to re-enter the password continually until the correct password is recognized. Then the system will acknowledge by displaying "OK."

Note: INSTALL (or LCD can also be used on newer jobs) is the factory default system password. Each time you disconnect and reconnect, you must re-enter the password.

EXAMPLE (How to Type in the Password)

```
Enter Password
On Line
***** <enter ↵>
(* represents each password key entry)
OK>
C # 1 =>
(ready to perform diagnostics or adjustments)
```

Changing Passwords

The Change Password <CHP> command has been provided to allow the user to change the default passwords used to enter the human interface. The first two levels of password protection can be changed using this command (see below).

Note: Once the passwords are changed, CEC will not be able to help you if you forget the new passwords. To provide extra security, the passwords cannot be read back from the terminal. It is critical that you write down any new passwords and store them in a safe place.



	FACTORY SET <PASSWORD>	PROMPT	FIXED?	AVAILABLE FUNCTIONS
Level #1	SNOW-FLAKE	C# 1=:	(Changeable)	Adjust, View, and Change Password
Level #2	INSTALL	C# 1=>	(Changeable)	Adjust and View
Level #3	INSTALL	C# 1=>	(Changeable)	Adjust and View
Level #4	HUDSON.BAY	C# 1=.	(Fixed)	View Only

Table1

To change any of the passwords you must first log-on using the level #1 password, then type the <CHP> command. You will be prompted for the password ID level and the new password. You will be prompted to enter the password twice in order to ensure that the password is entered correctly. It is then necessary to execute the <WRT>

command in order to save any changes made with the <CHP> command.

Note: The prompt " =: " indicates that you have logged-on using the 1st level password. <SNOW-FLAKE> is the default 1st level password (dash must be included).

To Change the Password:

```

Enter Password >
On Line
*****
OK >
C# 1=: CHP

Input the ID <1-3> 3

Input the new Password <max 10 char> *****

Again *****
CHP>> OK
C# 1=: WRT
Please Wait ...
WRT>> OK
C# 1=:

```

Figure 5-4 Change Password Screen

1. Log on as <SNOW-FLAKE> <enter>
2. Enter the command <CHP> <enter>
3. Enter password level. (1,2,or 3)
4. Enter new password.

5. Repeat password entry.
6. Type <WRT> <enter ↵> (Write to FLASH memory. Saves change.)

Disconnect the connector from the P11 Human Interface port and then reconnect it. You should now be able to log-on using the new password.



RVU (Remote Video Unit) Introduction

This section will provide the user with a complete understanding on the operation of the SWIFT Futura Remote Video Unit (RVU). By using the four push buttons on the front panel of the RVU, a variety of functions can be performed. These functions include setting hall calls and car calls, error tracking, and error analysis. This makes the RVU an invaluable tool for troubleshooting and diagnostics.

The RVU communicates to the group controller (SPU) on the Car To Group bus (CTG). The RVU can be wired to any controller in the bank. Once connected, it is possible to view information from all of the cars in that particular bank. If another controller in the group becomes the "Master" (Dispatcher) the RVU will need to re-establish communications with the new "Master" controller which will take approximately 20 seconds to do so.

There are two main screens displayed by the RVU; the group screen, which shows all of the elevators in the bank as well as their position and movement, and the car diagnostic screen, which provides detailed information on the status of the car being viewed. Depending on which screen is being viewed, the push buttons can be used to perform different tasks. Throughout the remainder

of this document, the push buttons will be referred to as:



Rotate Screen



Enter



Scroll Left



Scroll Right

It is recommended that the user become familiar with these buttons and their names. A full description on the use of the push buttons and the functions they perform will be provided in the following pages.



Initialization and Communication Set-Up

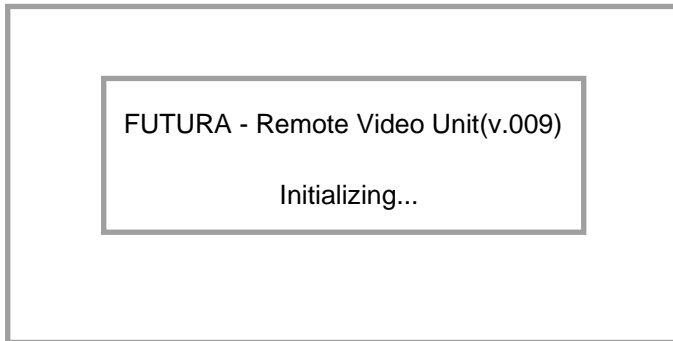
1.

Before powering up the RVU, consult the wiring diagram. Remember, when wiring to the RVU to the CTG Buss, the transmit and receive lines are swapped with the SPU

T_x- on the RVU is wired to R_x- on the SPU

Once proper wiring is confirmed, connect the VGA monitor to the RVU and power on the monitor and RVU.

After a few seconds, the following screen will appear:



If the EMIS feature was purchased, the screen will display "Remote Video Unit & EMIS".

When this screen appears, the user has approximately three seconds to access the communication setup menu. To enter communication setup, press the rotate screen button as soon as the initialization screen appears. The following screen will appear:

Communication Setup			
PORT	BAUD RATE	SIGNAL TYPE	COMM ADDRESS
REMON / WIZARD	19200	RS-232	1
CTG / HC	38400	RS-485	212
[] DONE	← CHANGE	<< >> UP/DOWN	<< LEFT >> RIGHT

The default settings are shown above. The only time it will be necessary to change any settings is if a Remote Monitoring System is being used. If any changes need to be made and the message "Unable To Setup Comm" appears on the screen, disconnect the connector from the CTG/HC port on the back of the RVU.

If line drivers are used to communicate with a Remote Monitor PC, the comm. setting for the Remon/Wizard port will need to be changed.

1. Press the scroll right button until the signal type for the Remon/Wizard port is highlighted.
2. Next, press the Enter button to change the value from RS232 to RS485.
3. Once this value has been changed, press the rotate screen button (done). The RVU will reset and the change will take place.
4. Reconnect the CTG/HC port after the RVU resets.

The menu can also be used to set up extended RVUs. In this configuration, more than one RVU can be connected to the same group on the same bus. One RVU, the master, will communicate to the SPU at address 212. Any other RVUs, or extended RVUs, connected to this group must use comm address 213. To switch to the CTG/HC parameters, press both the scroll left and right buttons simultaneously. Highlight the comm address parameter. Press the enter button to switch the address to 213. Press the rotate screen button and the RVU will reset. Extended RVUs can only access the group screen, not diagnostic screens.



The Group Screen

After the RVU initializes successfully, the group screen, or motor room screen, will be displayed. A sample group screen is shown below:

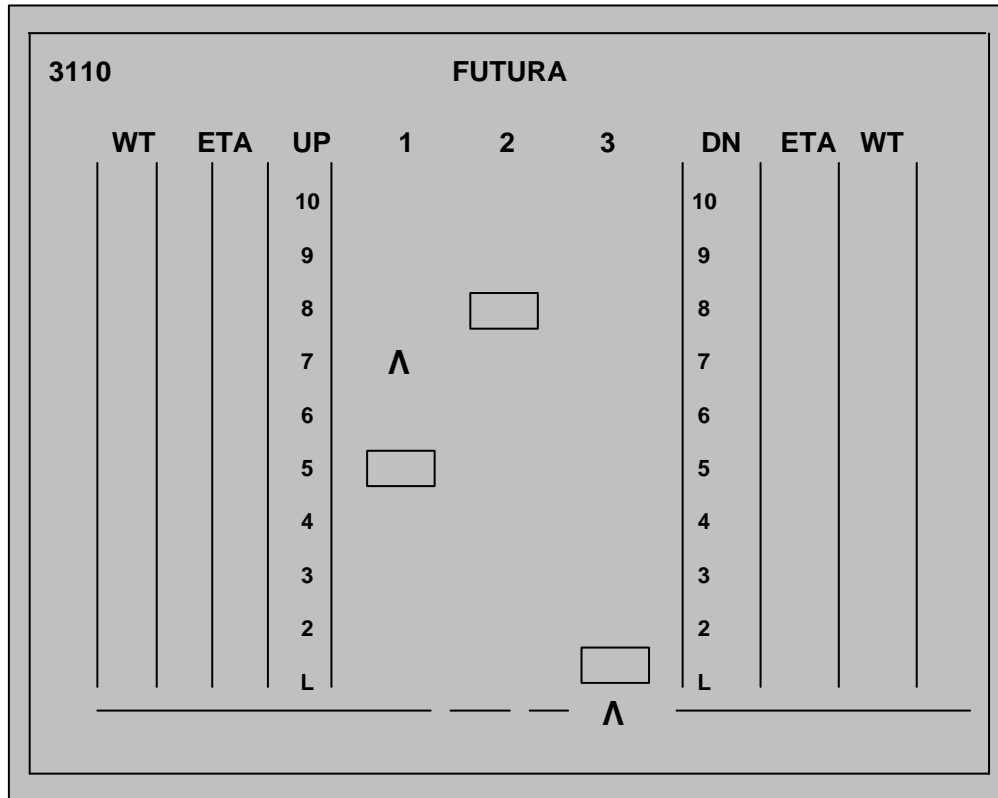


Figure 5-5

Note that the CEC job # is shown in the upper left corner of the screen. The left side of the display represents the wait time and estimated time of arrival for UP calls. DOWN call information is displayed on the right side of the screen.

From this screen, the push buttons can be used to perform various functions. The first button is used

to rotate the screen from the group display to the car diagnostic screen. Pressing this button once from the group screen will display the diagnostic screen for car one. To see the next car, simply press the rotate screen button again. It is possible to scroll directly to a desired car's diagnostic screen without scrolling through all of them. By pressing the scroll left button or the scroll right button, a specific car number can be highlighted at the top of the screen. Once the desired car is

highlighted, press the rotate screen button to scroll directly to that car's diagnostic screen.

The functions available from the group screen include setting hall and car calls, changing the appearance of the group screen, and hiding the ETA and wait times. To access the list of functions available from the group screen, press the enter button. The command 'Hall Call' will appear at the bottom of the screen. To scroll through the available commands, press the scroll left or scroll right buttons.



Setting a Hall Call from the Group Screen

Once the command 'Hall Call' appears at the bottom of the screen, press the enter key. The option 'Set Up Call' will appear to the right. To select 'Set Down Call' press the scroll right button. Pressing the scroll right button again will bring up the 'Exit' option. Once the desired function is selected (up call, down call, or exit) press the enter key. If an up or down call was selected, the command 'Select Floor' will appear. Use the scroll left and scroll right buttons to set the desired floor and press the enter key. The call will be set at that floor and the commands will clear from the bottom of the screen. The user also has the option to exit from the 'Select Floor' option. If 'Exit' is selected, all the commands will clear from the bottom of the screen and no calls will be set.

Setting a Car Call from the Group Screen

In order to set a car call, the user must first select a car. To do this, press the scroll right or scroll left button until the desired car is highlighted. Then press the enter key once, select the option 'Car Call', and press enter. The option 'Set Car Call' will appear to the right. The user can also select the option 'Exit' from here. To set a call, select 'Set Car Call' and press enter. The command 'Select Floor' will appear to the right. Use the scroll left and right buttons to select the desired floor and press enter. The call will be set at that floor and the commands will clear from the bottom of the screen.

Canceling Car Calls from the Group Screen

This option can only be selected if a car call has been set for the highlighted car. Press the enter key, select 'Car Call', and press enter. The option 'Set Car Call' will appear. Press the scroll right button once and the command 'Cancel Car Call' will appear. Press enter to activate this command. This cancels **ALL** of the car calls for that car. This option will only be displayed for SPU versions 17 and above.

Changing the Appearance of the Group Screen

This option allows the user to select different preset colors for the group screen, to toggle between the extended and standard motor room screens, and to hide/show the ETA and wait times. Press the enter key once, select the option 'Group Screen', and press enter. The command 'Extended Group Screen' will appear. Pressing enter will switch the display to the extended group screen. The purpose of the extended group screen is to display the car's position and hall and car call assignments for jobs in which the total number of floors can't be displayed on one screen. The cars are displayed at the top of the screen, showing their position, door status, direction, and service status. The floor numbers are listed in columns with hall call assignments next to the floor number. A number representing the car assigned to that call is displayed to the upper right of the hall call. Separate columns are used for each car to represent car calls. The car call will appear under the appropriate car number at the floor for which the call is set. Hall and car calls can also be set from this screen using the same procedures as the standard motor room screen. To return to the standard motor screen, press the enter key, select 'Group Screen', and select the option 'Single Group Screen'.

Selecting the option 'Hide ETA & Wait Time' from the standard motor room screen will cause the ETA and wait time columns to disappear from the display. Also, the service type and job number will not be displayed. The next time this option appears, it will read 'Show ETA & Wait Time'. Press enter to return to the original display. If you do not wish to select this option, use the scroll right button to select 'Select Preset Colors' or 'Exit'. If 'Select Preset Colors' is chosen, the command 'Preset Color 1' appears. There are 10 preset color options. Use the scroll left and right buttons to choose a preset color and press enter. The screen will change colors and the commands will clear from the bottom of the screen.

The Car Diagnostic Screen

To access a car diagnostic screen, press the rotate screen button from the group screen. To scroll to the next car, press the rotate screen button again. Pressing the rotate screen button from the last car in the group will return the user to the group screen. To return to the group screen without scrolling through all of the cars, press and hold in the rotate screen button for two seconds and then release it. This will return the user to the group screen, regardless of which car diagnostic screen was being displayed.

There are eight SMI blocks displayed on a car diagnostic screen. To rotate the SMI blocks, press either the scroll left or scroll right button. This will rearrange the blocks and allow the user to see any remaining SMI blocks. Only eight blocks can be displayed at one time.

As with the group screen, pressing the enter key will bring up an options menu. This menu will appear in the middle of the screen. The available commands are 'Set Car Call', 'Arm/Trigger', 'Error Codes', 'Reset Errors', and 'Exit'. In addition, if any car calls have been set for this car, the option 'Cancel Car Call' will appear. The option 'Error Codes' will only appear for SPU version 17 and above and only when the car being viewed has any faults listed. Use the scroll left and right buttons to select the desired option and press enter to activate it.

Setting a Car Call from the Diagnostic Screen

After selecting the 'Car Call' option, the command 'Set Car Call' will appear to the right. Press enter. The command 'Set Floor' will appear. Again, use the scroll left and right buttons to select a desired floor and press enter to set the call.

Canceling Car Calls from the Diagnostic Screen

This option can only be selected if a car call has been set for the car being viewed. Press the enter key, select 'Cancel Car Call', and press enter. Press enter to activate this command. This cancels **ALL** of the car calls

for that car. This option will only be displayed for SPU versions 17 and above.

Triggering for Errors

After selecting the option 'Arm/Trigger', the user has the option to 'Trigger Now' or 'Arm For Error'. Selecting 'Trigger Now' will result in the screen turning red and the enter button flashing. The total number of frames and the current frame will be displayed. To scroll through these frames, press and hold in the rotate screen button and press the scroll left and right buttons. For more trigger options press the enter key and select 'Arm/Trigger'. The options 'Set Frame Increment', 'Jump Frame', 'Jump To Current Frame', 'Play Backward', 'Play Forward', 'Reset', and 'Exit'. Selecting 'Exit' will exit from this menu and leave the RVU in trigger mode. To exit trigger mode, select 'Reset'.

The RVU can also be set to trigger only for certain errors. Select 'Arm/Trigger', press enter, then scroll to the option 'Arm For Error' and press enter. The error and its error code will appear to the right. Use the scroll buttons to select the error desired for the RVU to trigger on and press enter. When the error occurs, the screen will appear with a red frame and the enter key will flash. Press the scroll left button once (while holding in the rotate screen button) to find where the error occurred. Scroll left will then show the frames before the error, and scroll right will show the frames after the error.

Viewing Error Information

Select the option 'Error Codes' from the diagnostic screen menu and press enter. The screen will turn blue and the message "DOWNLOADING CONTROLLER FAULTS Please Wait..." will appear. After a few seconds, the Fault List screen will appear. Along the left hand side of the screen, there is a menu and directions on how to use the push buttons. The lower left hand corner displays the number of pages to view or the number of bytes.

The first screen to be displayed is the fault list. This list displays the faults (by corresponding error code) in the order they occurred. Also listed with each fault is the number of times



the fault occurred, the floor the car was on, and so on. Use the scroll left and right buttons to view the other pages of information.

To switch to the Description list, press both of the scroll buttons simultaneously. This will bring up a list of all of the error codes and their description. The descriptions are in the same order as the Fault List.

Pressing both scroll buttons again will bring up the Details screen. This is a visual representation of the car's status when the error occurred. Information such as the door status, motor field status, and brake status can be viewed. Each fault has three pages of information. The pages can be scrolled through using the scroll left and right buttons.

To see the List Description screen, press both scroll buttons. This will bring up a list of all of the acronyms used in the fault list (i.e. DMD, demand velocity). Each acronym is shown with a brief description. The control status words are also explained in detail. It is recommended that the user scroll through this list and become familiar with the information it contains.

To exit the error diagnostics, press the enter key. The car diagnostic screen will be displayed.

Resetting Errors

Select 'Reset Errors' and press enter from the diagnostic screen menu. This will clear all of the faults on the diagnostic screen.

