PORTABLE COMPUTER DISPLAY
7908.9012

Diagnostic Tool for
U.S. MP-1220 / 1230
Systems

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INSTRUCTIONS FOR USING PCD WITH U.S. MP-1220 SYSTEM

PORTABLE COMPUTER DISPLAY The Portable Computer Display (PCD) is used to monitor controller and elevator operation. (In effect, the PCD provides a convenient window in to the computer.) The PCD is interfaced with the computer when plugged into the connector "PCD" located on the computer motherboard of the controller. The PCD control and indicator panel consists of three sections:

(1) Status Indicators
(2) LED Displays
(3) Keyboard and Display

Status Indicators The status indicators are shown in Figure 1-1. These are labeled MODE, PHASE, LEVEL (LVL), and FAULT.

Fault codes The fault codes reflect computer elevation of test routines programmed into computer memory. The program tests for predetermined conditions that prevent normal elevator operation. When one of these conditions is detected, a different program routine takes corrective action, and the computer outputs a failure identification code for display on the PCD. Elevator performance failures are identified as "Faults". Fault codes are defined in Table 1-1.

FAULT CODES

CODE	TYPE OF PROBLEM
None	Normal operation.
0	Program error; replace the A2 assembly.
1	Program error; replace the A2 assembly.
2	Warning detected; car will continue to operate normally if possible, but will not operate in automatic mode. Normal operation resumes when the warning condition is corrected.
3	Recoverable fault detected; car will stop at the next possible landing. Car will not operate in automatic mode. Normal operation resumes when the fault condition is corrected.
4	Fault detected; car will stop at next possible landing and shut down. Use Display 1 to determine cause.
5	Fault detected; car will stop immediately. Use Display 1 to determine cause.

TABLE 1-1

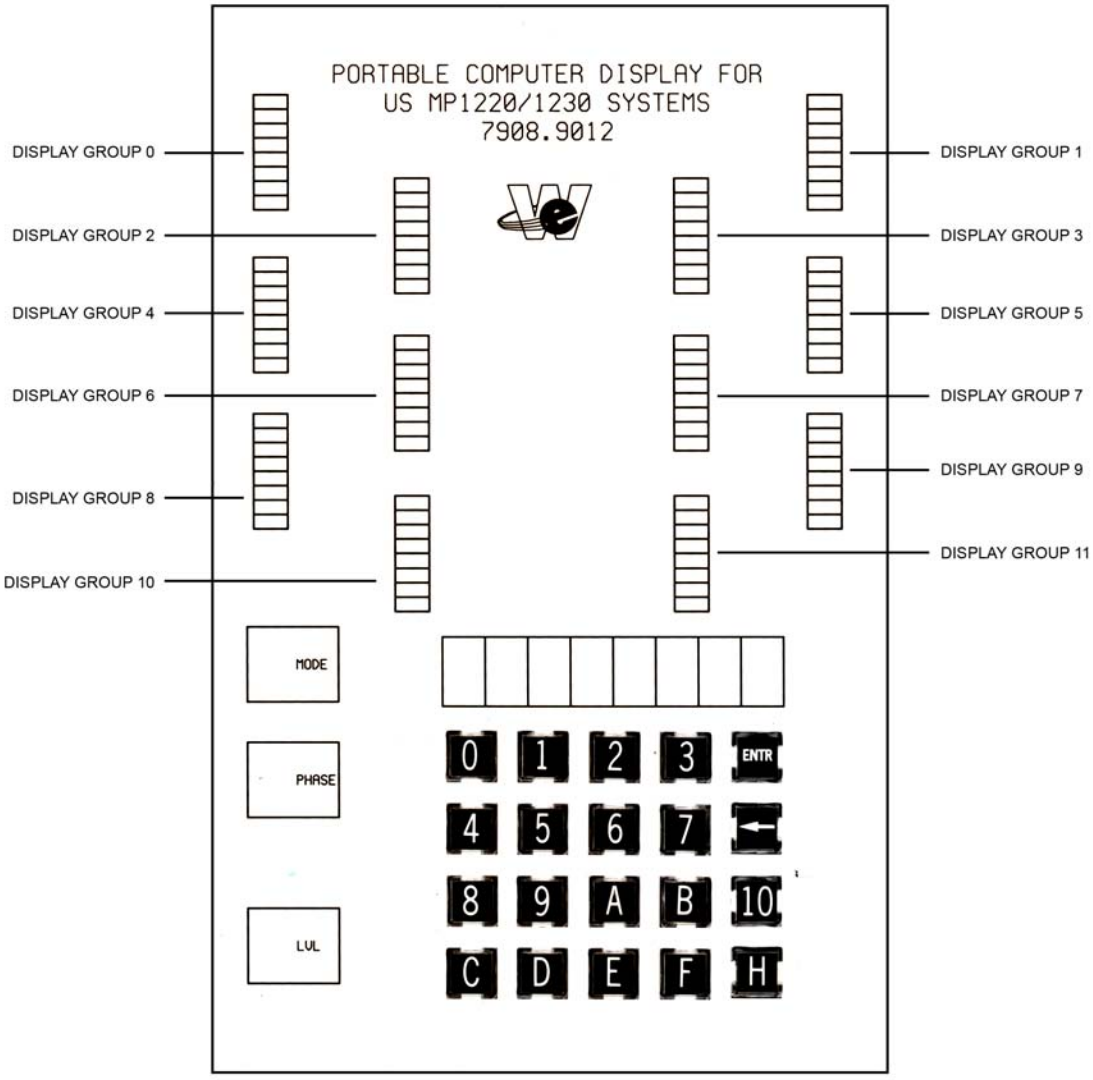


FIGURE 1-1
PORTABLE COMPUTER DISPLAY (PCD) COVER

Mode of operation Operating modes are determined by switch and/or computer settings of program selection. Modes are set in priority sequence. Mode designations are defined in Table 1-2

PCD CODES FOR MODES, PHASES, AND FAULTS

MODES	PHASES	FAULTS
0 Restart	0 Fault Detected	0 Internal Error
1 Inspect	1 Shutdown	1 EPROM/RAM Error
2 Access	2 Lost Position	2 Warning
3 Fire Ind.	3 Wakeup	3 Fault (Run To Terminal)
4 Fault	4 Rest	4 Fault (Land At Next Lvl.)
5 Test	5 Relevel	5 Fault (Stop Now)
6 Emergency Power	6 (Unassigned)	
7 Fire Return	7 Level	
8 Test Request	8 Approach	
9 Secure Park	9 Intermediate	
A Independent	A High	
B Special Service I		
C Special Service II		
D Automatic		
E Attendant		
F (Unassigned)		

TABLE 1-2

Phases of the Run The phase is the indicator that tells what the car is attempting to do as related to motion. Each different type of motion has a different phase. Unlike the mode, the phase is not a priority indicator, but is rather a state indicator. Phase designations are defined in Table 1-2.

Level (LVL) Indicates the floor level at which the car is located. The display code is defined in Table 1-3.

LVL DISPLAY CODES

DISPLAY	LEVEL
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	A
11	B
12	C
13	D
14	E
15	F
16	0

TABLE 1-3

LED Indicators The LED indicators are in 12 rows of 8 LEDs each. These are used to show the status of operational signals. In general, a LED ON indicates a closed contact or an output signal being driven ON. The default display (D0) is shown in Figure 1-2. This display is selected whenever the controller is reset. Other displays are also selectable by using the keyboard.

Keyboard and Display Figure 1 shows the PCD keyboard. Several keys have dual purpose depending upon when they are entered. On the first keystroke, the B, C, D, and H keys have a special purpose as described below. After the first keystroke, the B, C, and B keys assume their normal value. The H key has no purpose except on the first keystroke.

The backspace key (represented by a left pointing arrow) allows corrections to be made. Each press of the backspace will erase an entry and allow it to be changed. The backspace will not erase the special displays “HE”, “bin”, “DSP”, or “CAL” but will allow them to be changed. Backspacing over the first entry and pressing the desired key will change the display.

Display Formats and Codes There are 14 possible display formats for the 12 rows of LEDs on the PCD. The display codes and formats are identified in the following list: (See Figures 1-2 through 1-14)

0 = Basic Control Signals / Default Display (Figure 1-2)
1 = Fault Information (Figure 1-3)
2 = Front Call Information (Figure 1-4)
3 = Rear Call Information (Figure 1-4)
4 = Front Door Signals (Figure 1-5)
5 = Rear Door Signals (Figure 1-5)
6 = Sequencing and Group Signals (Figure 1-6)
7 = Standard Multiplexed Input/Output Signals (Figure 1-7)
8 = Optional Input Signals (Figure 1-8)
9 = Optional Output Signals (Figure 1-9)
A = Timers 7 through 12 (Figure 1-10)
B = Timers 13 through 1E (Figure 1-11)
C = Control Data (Figure 1-12)
D = Option Input (Figure 1-13)
E = Option Input (Figure 1-14)

On power-up or after a reset, the display format is Display 0. The signals represented by the displays are defined in Table 1-4.

PCD Display Selected Change PCD display as follows:

1. Press Don the keyboard. The PCD will show "DSP" above the keyboard.
2. Press the number for the desired display, 0 through E.
3. Press the ENTER key.

Enter Front Car Call Using the Keyboard Calls entered while in test mode (mode 5) will not cycle the door. Calls entered while in automatic mode (mode D) will cause the door to cycle.
The procedure for entering calls is as follows:

1. Press C on the keyboard. The PCD shows "CAL" above the keyboard.
2. Press 1 through 10 (hex) for the desired floor or enter 0 to cancel all car calls.
3. Press the ENTER key.

NOTE

Calls entered while in test mode appear in the test call register. Calls entered while in automatic operation appear in the front car call register. Calls are entered as follows:

LEVEL (HEX)	ENTRY ON KEYBOARD
Cancel all calls	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
A	10
B	11
C	12
D	13
E	14
F	15
10	16

Display Memory Memory locations are displayed in either hex or binary format. Port data displayed is inverted. A hex display shows four memory locations (eight hex digits). A binary display shows one memory location in binary format with the most significant bit at the left.

Binary Display

1. Enter Bon the keyboard. The PCD shows "BIN" above keyboard.
2. Enter the five digit address (hex) of the desired location.
3. Press the ENTER key.

The display shows a group of eight zeros and one which represents the data at the desired location.

Hex Display

1. Enter H on the keyboard. The PCD shows "HE" above the keyboard.
2. Enter the five digit address (HEX) of the desired location.
3. Press the ENTER key.

The display shows a group of eight hex digits, two digits per location. The first location is shown on the far left of the display. The following examples show the values displayed when port address 10091 is entered:

FFFC 6E 7F

The first two digits from the left (FF) is the value at port 10090. The next two digits (FC) is the value of port 10091. The next two (6E) are for port 10092 and the last two (7F) for port 10093.

A binary display of port 10092 shows the following:

01101110

Inverting the data to arrive at the correct values gives:

10010001

which indicates the car is traveling UP with DELTA and PRD on.

1220 DISPLAY 0
BASIC CONTROL SIGNALS

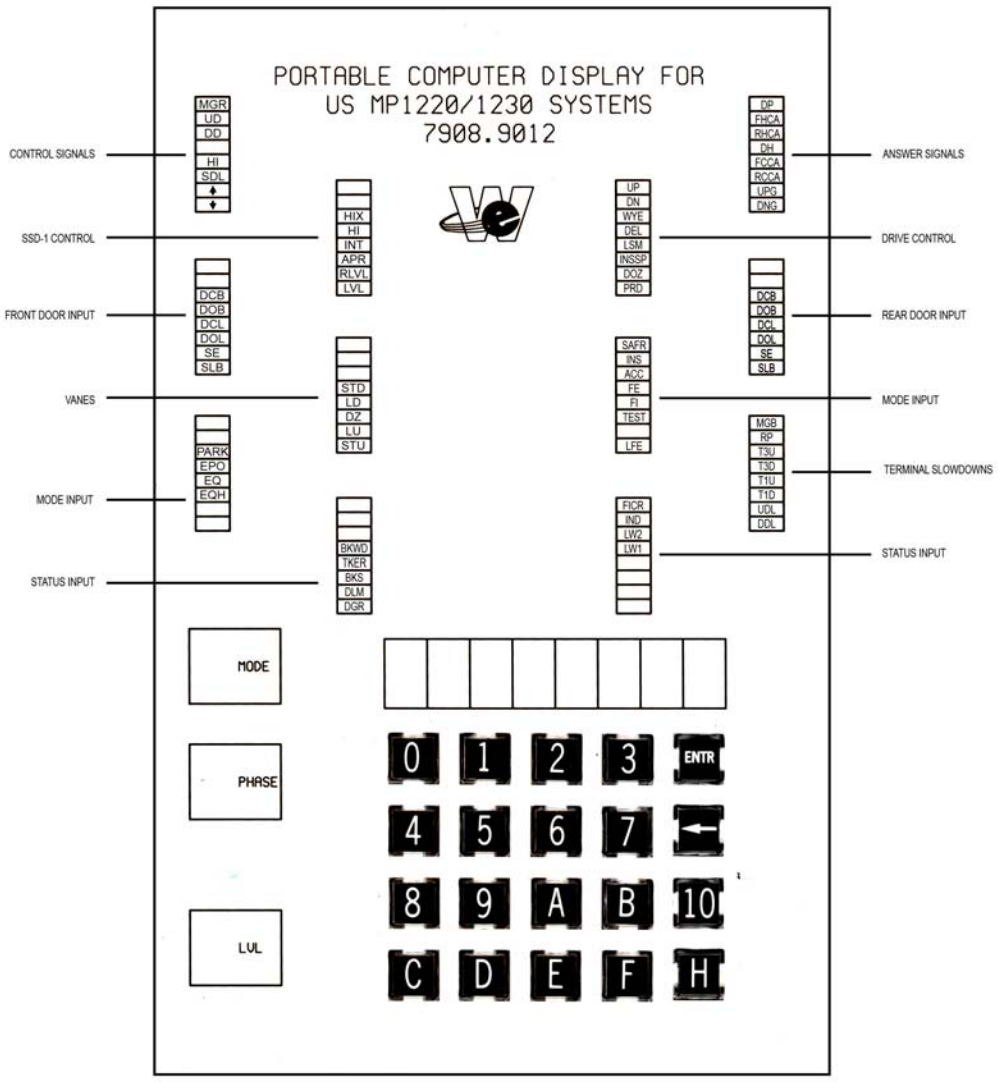


FIGURE 1-2
1220 DISPLAY 0

1220 DISPLAY 1
FAULT INFORMATION

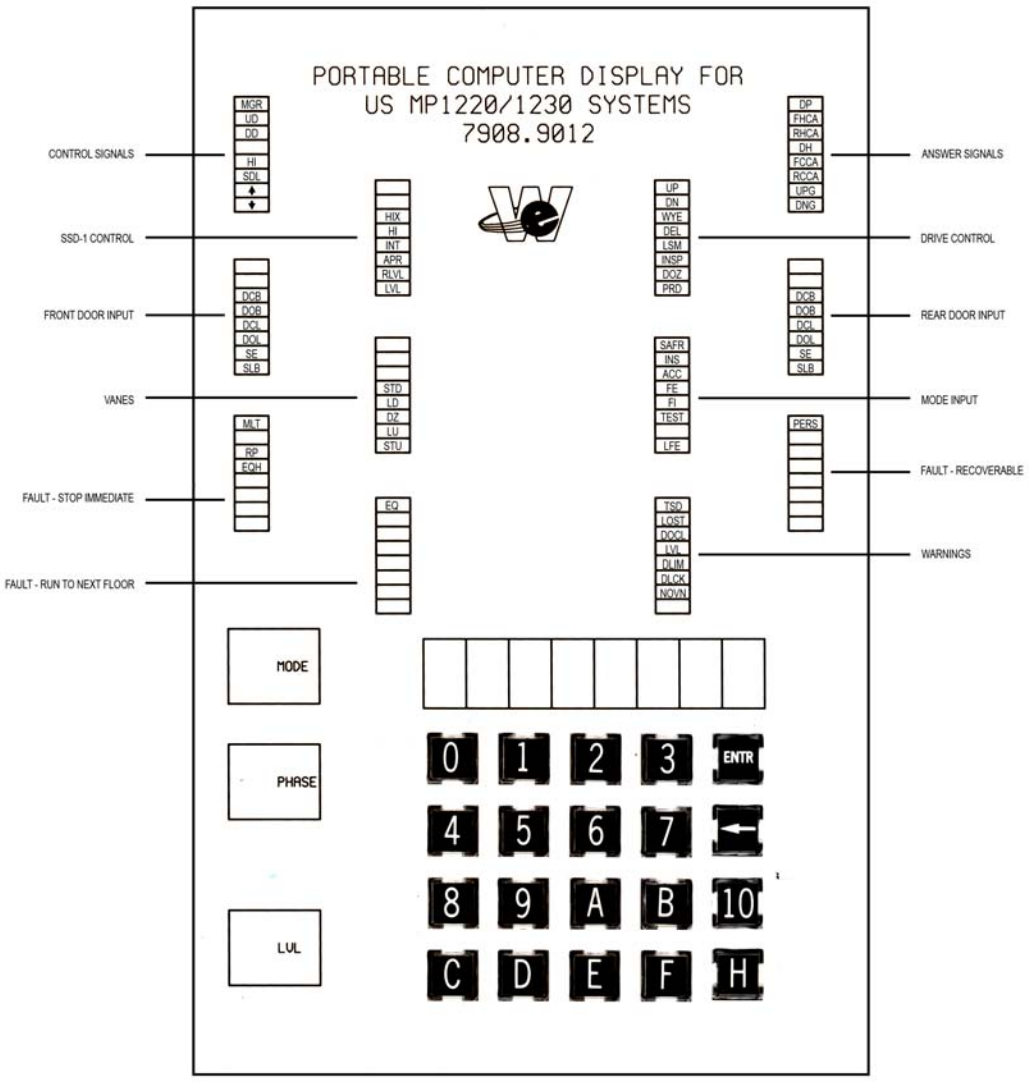


FIGURE 1-3
1220 DISPLAY 1

1220 DISPLAY 2/3
2 - FRONT CALLS
3 - REAR CALLS

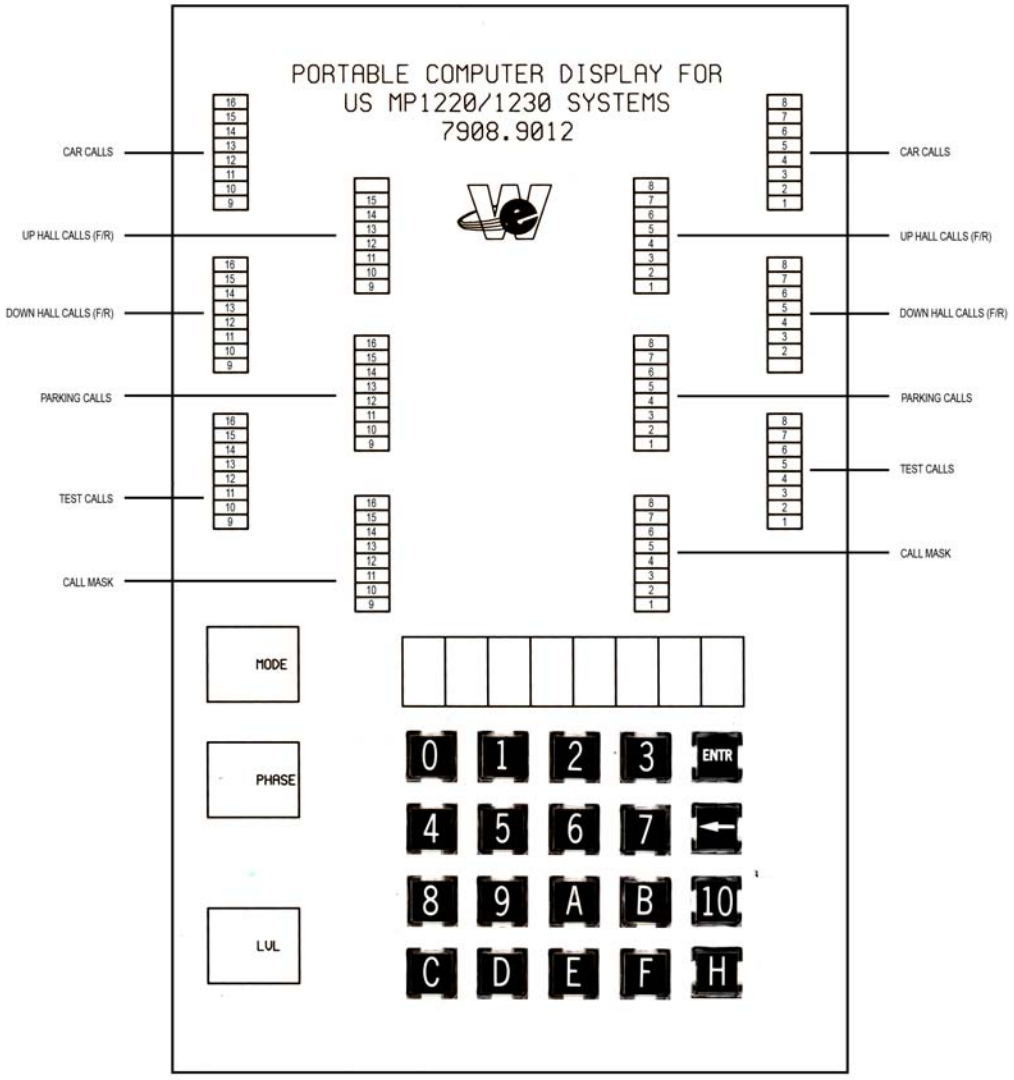


FIGURE 1-4
1220 DISPLAY 2/3

1220 DISPLAY 4/5
4 - FRONT DOOR SIGNALS
5 - REAR DOOR SIGNALS

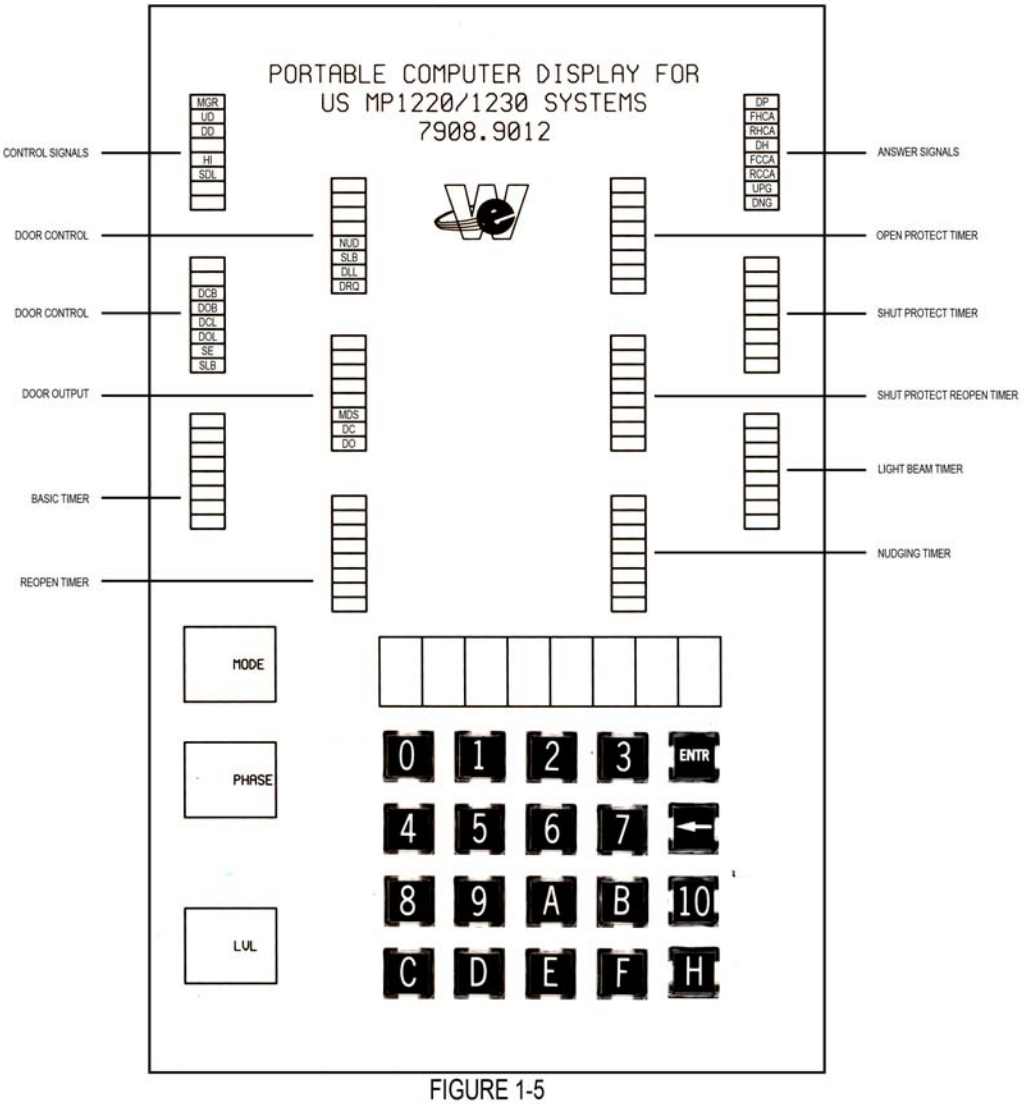


FIGURE 1-5
1220 DISPLAY 4/5

1220 DISPLAY 6
SEQUENCING & GROUP SIGNALS
THIS DISPLAY PROVIDES THE FOLLOWING:
-GROUP DISPATCH SIGNALS
-SEQUENCING SIGNALS
-PROGRAM FLAGS

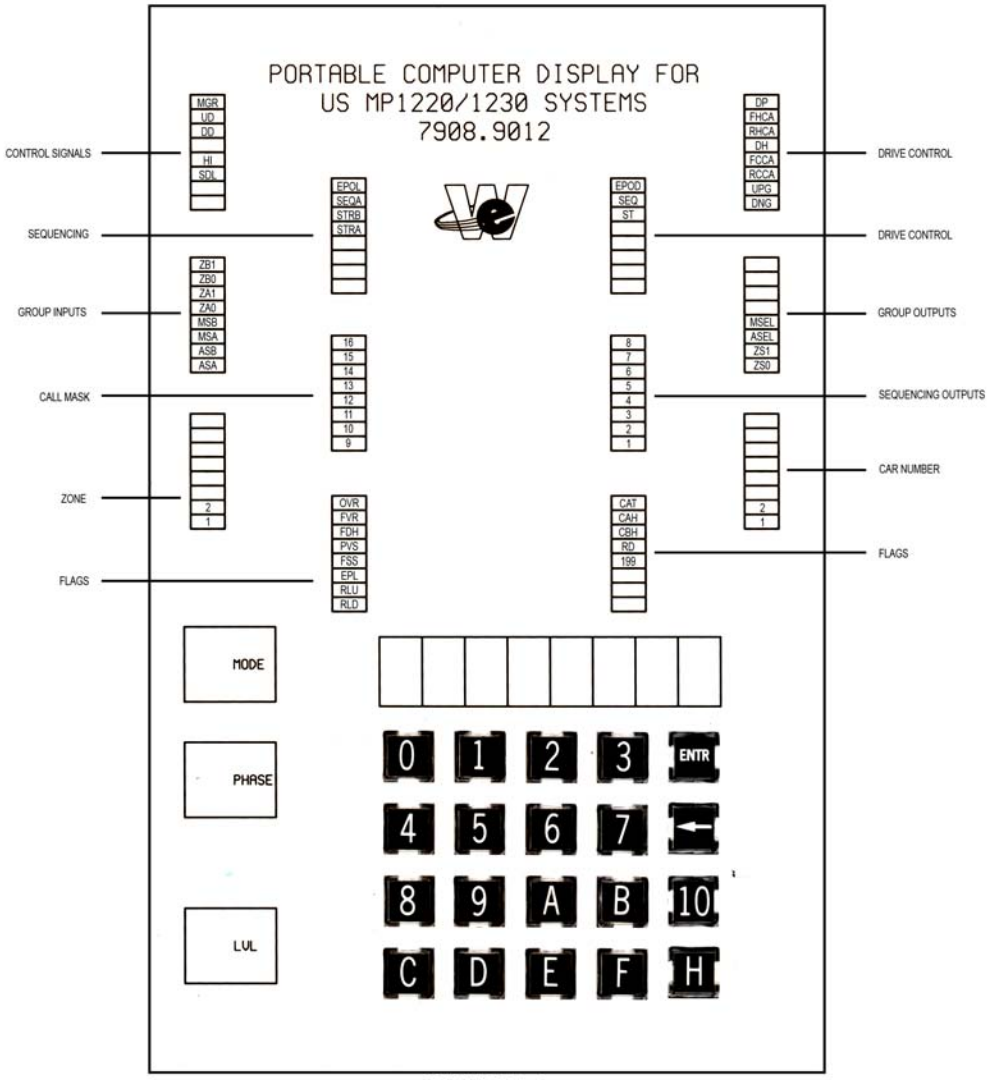
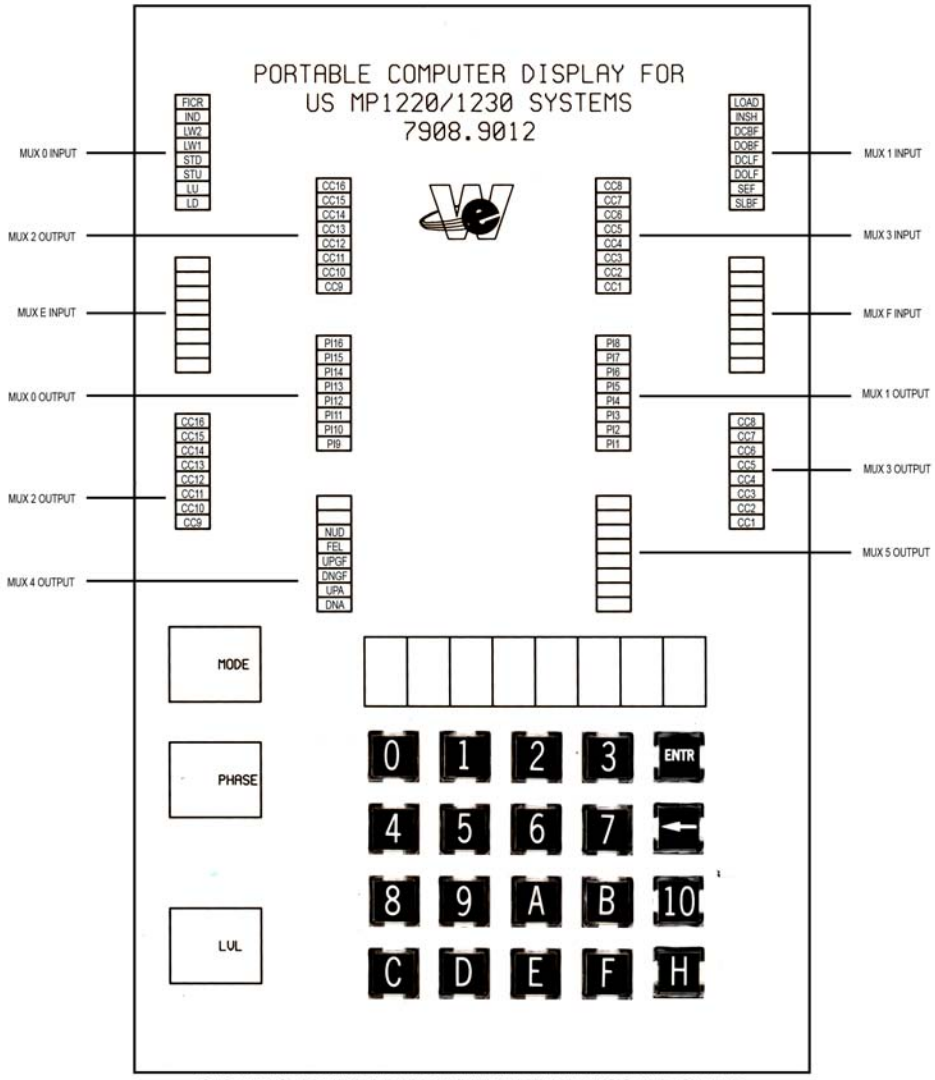


FIGURE 1-6
1220 DISPLAY 6

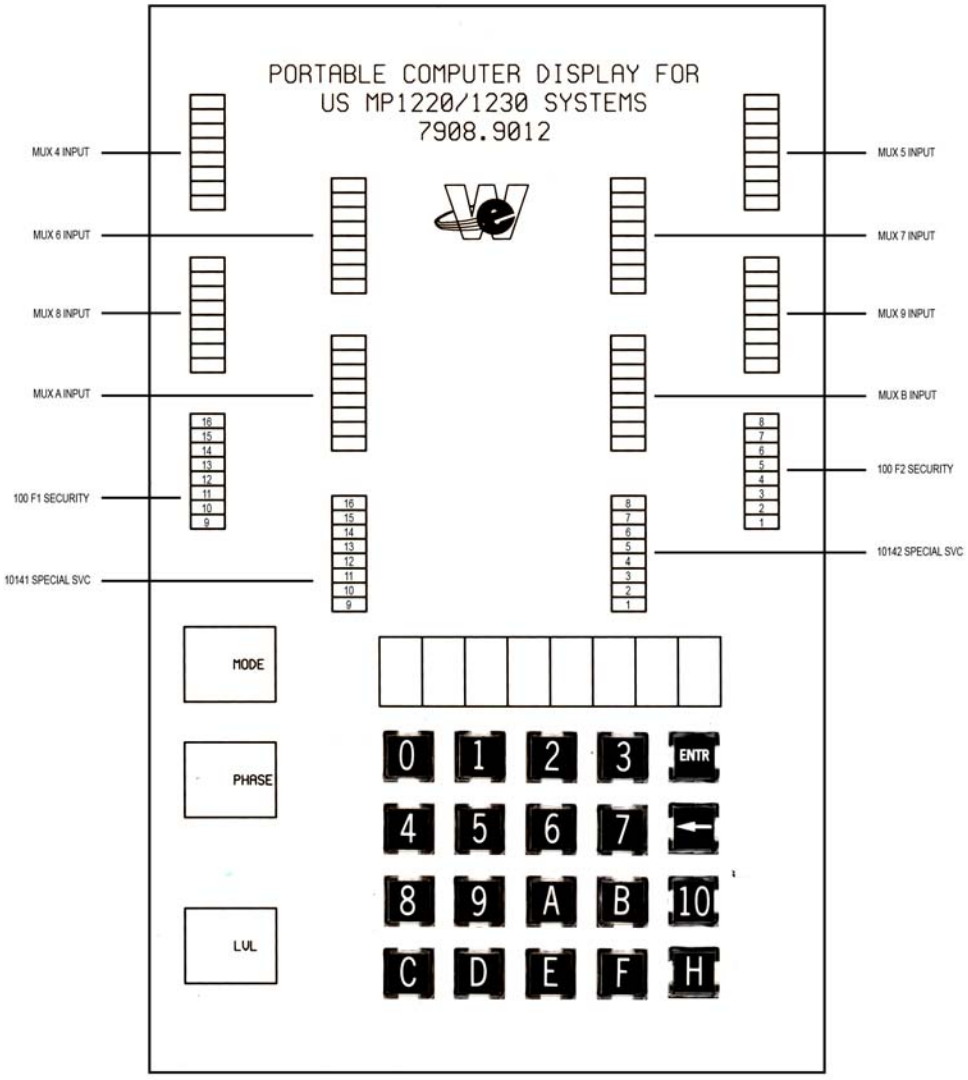
1220 DISPLAY 7
STANDARD MULTIPLEXED INPUT / OUTPUT



SIGNALS MULTIPLEXED BETWEEN THE CONTROLLER
& THE CAR-TOP CONTROLLER

FIGURE 1-7
1220 DISPLAY 7

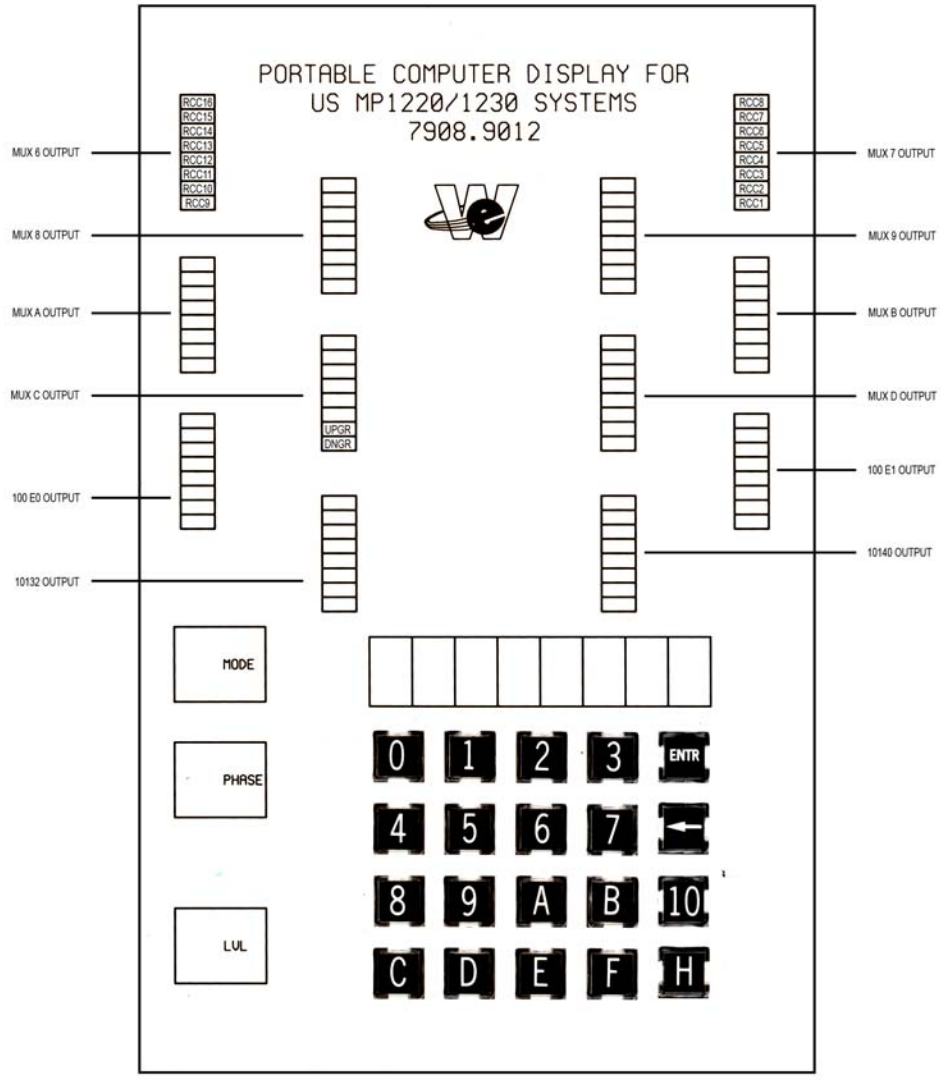
1220 DISPLAY 8
OPTIONAL INPUT SIGNALS



INPUT SIGNALS WHICH ARE IMPLEMENTED ON
THE A4, A5 OR CAR-TOP OPTION ASSEMBLY

FIGURE 1-8
1220 DISLAY 8

1220 DISPLAY 9
OPTIONAL OUTPUT SIGNALS



OUTPUT SIGNALS WHICH ARE IMPLEMENTED ON
THE A4, A5 OR CAR-TOP OPTION ASSEMBLY

FIGURE 1-9
1220 DISPLAY 9

1220 DISPLAY A
TIMERS 7-12

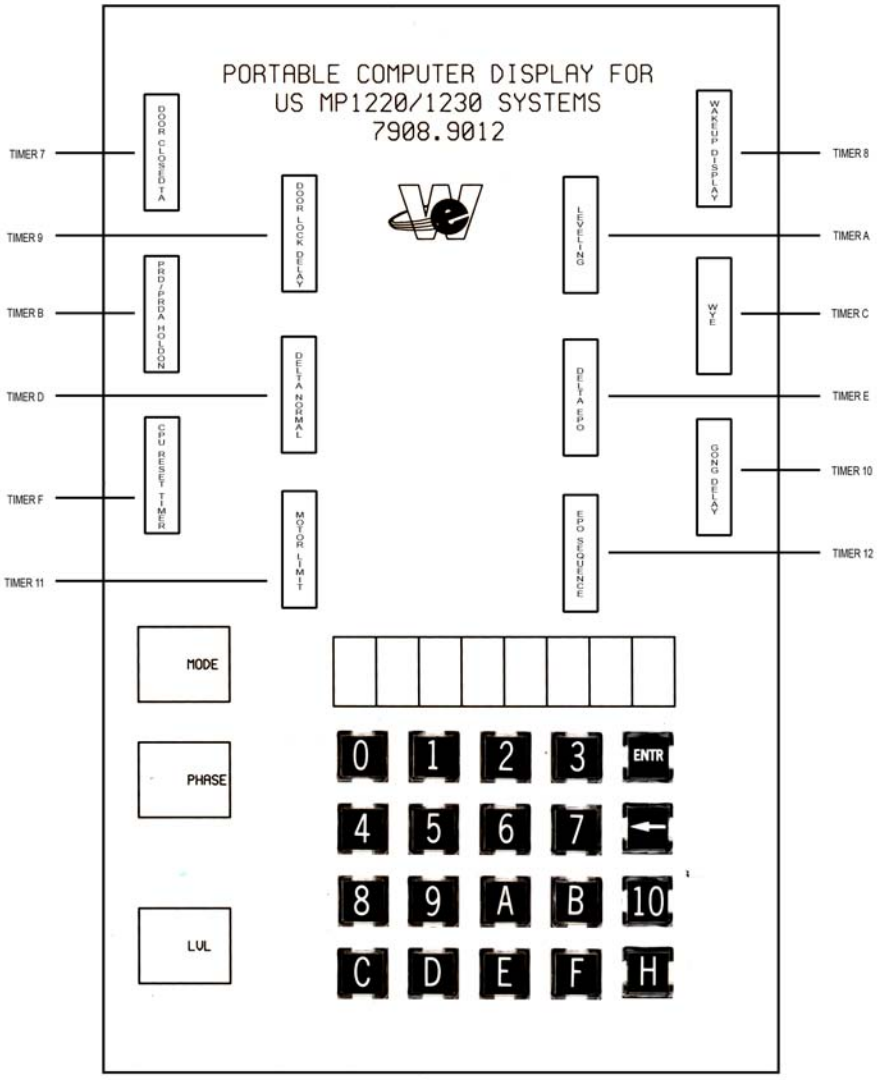


FIGURE 1-10
1220 DISPLAY A

1220 DISPLAY B
TIMERS 13-1E

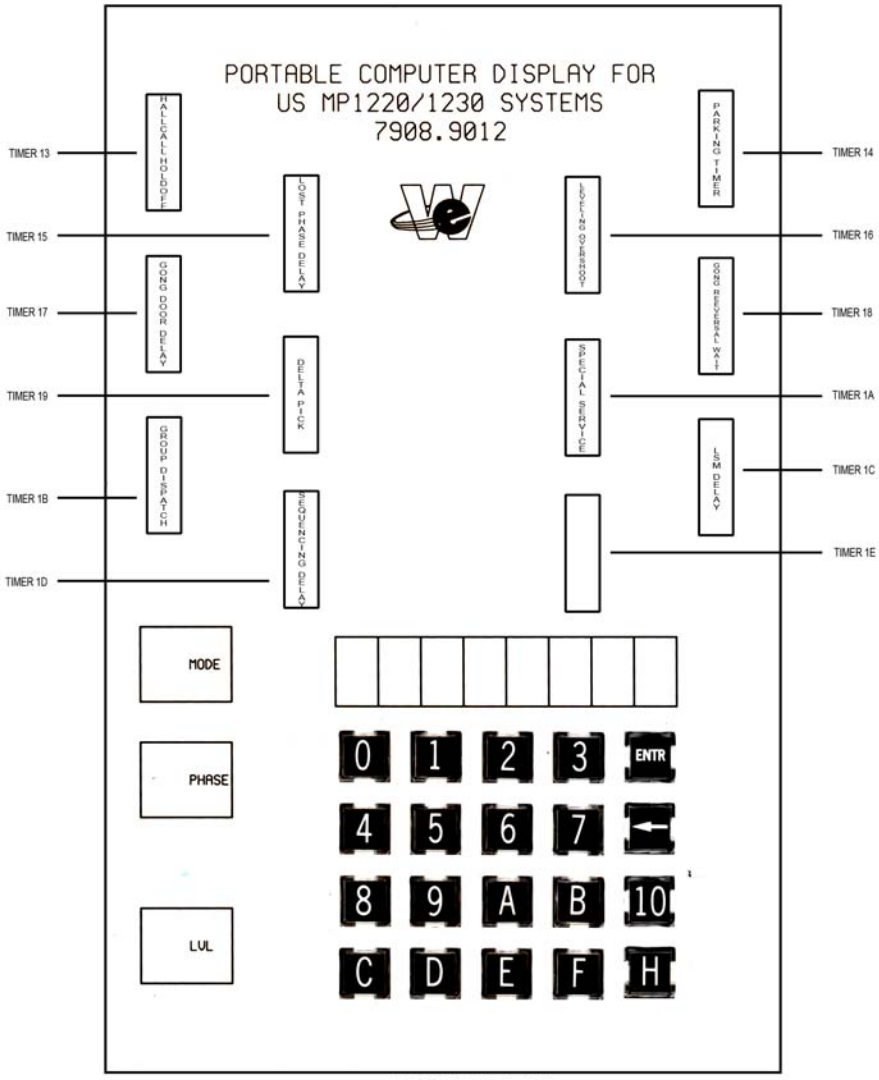


FIGURE 1-11
1220 DISPLAY B

1220 DISPLAY C
CONTROL DATA

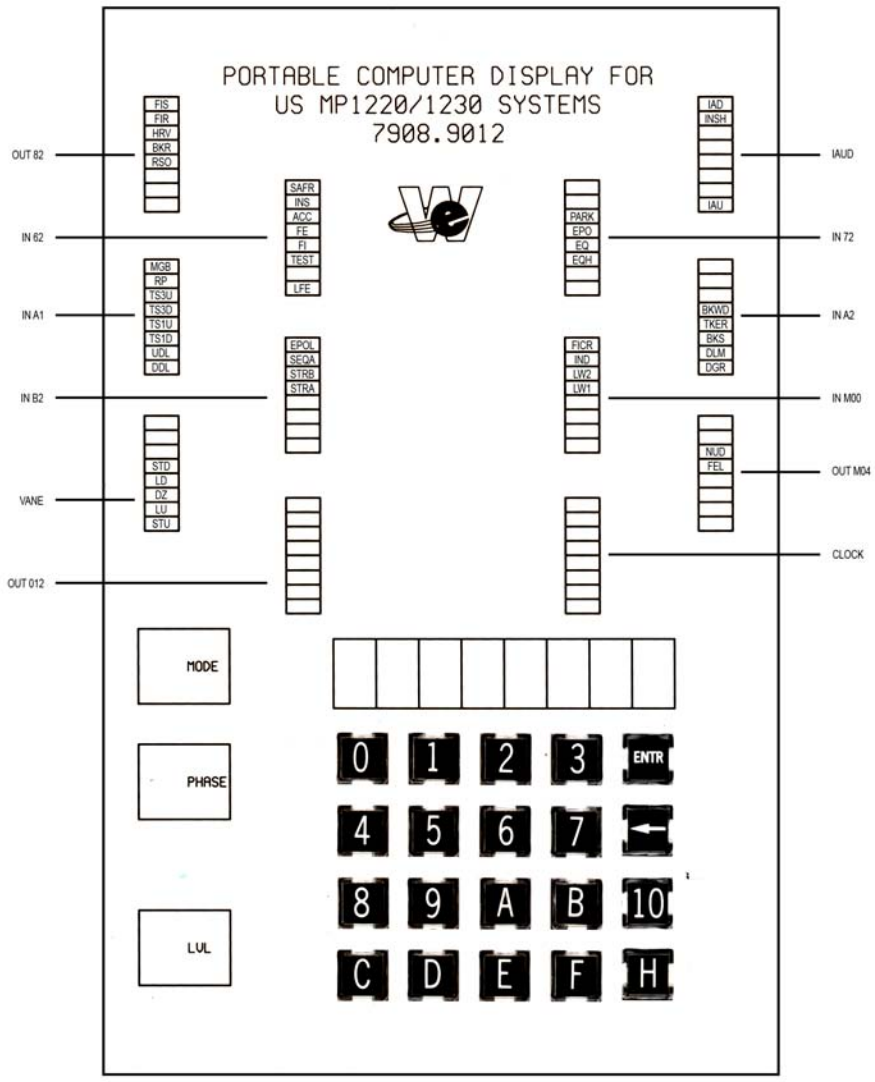


FIGURE 1-12
1220 DISPLAY C

1220 DISPLAY D
OPTION INPUT

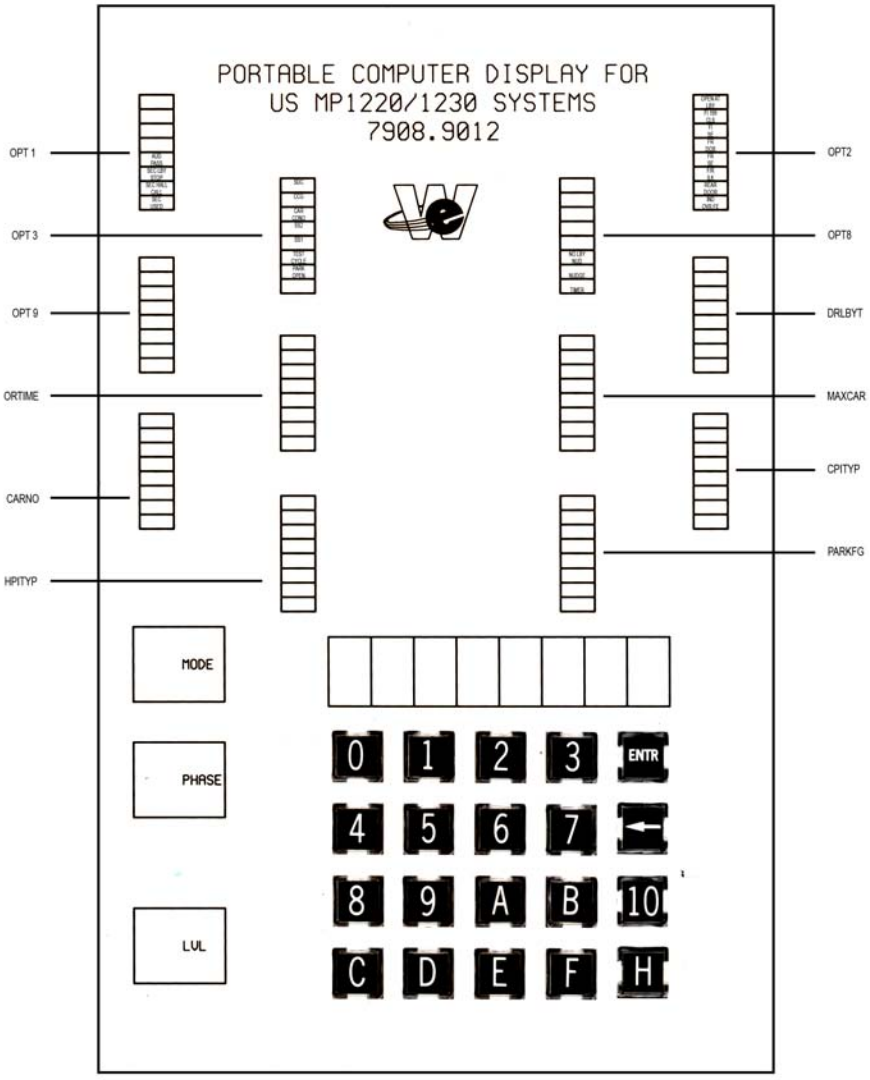


FIGURE 1-13
1220 DISPLAY D

1220 DISPLAY E
OPTION INPUT

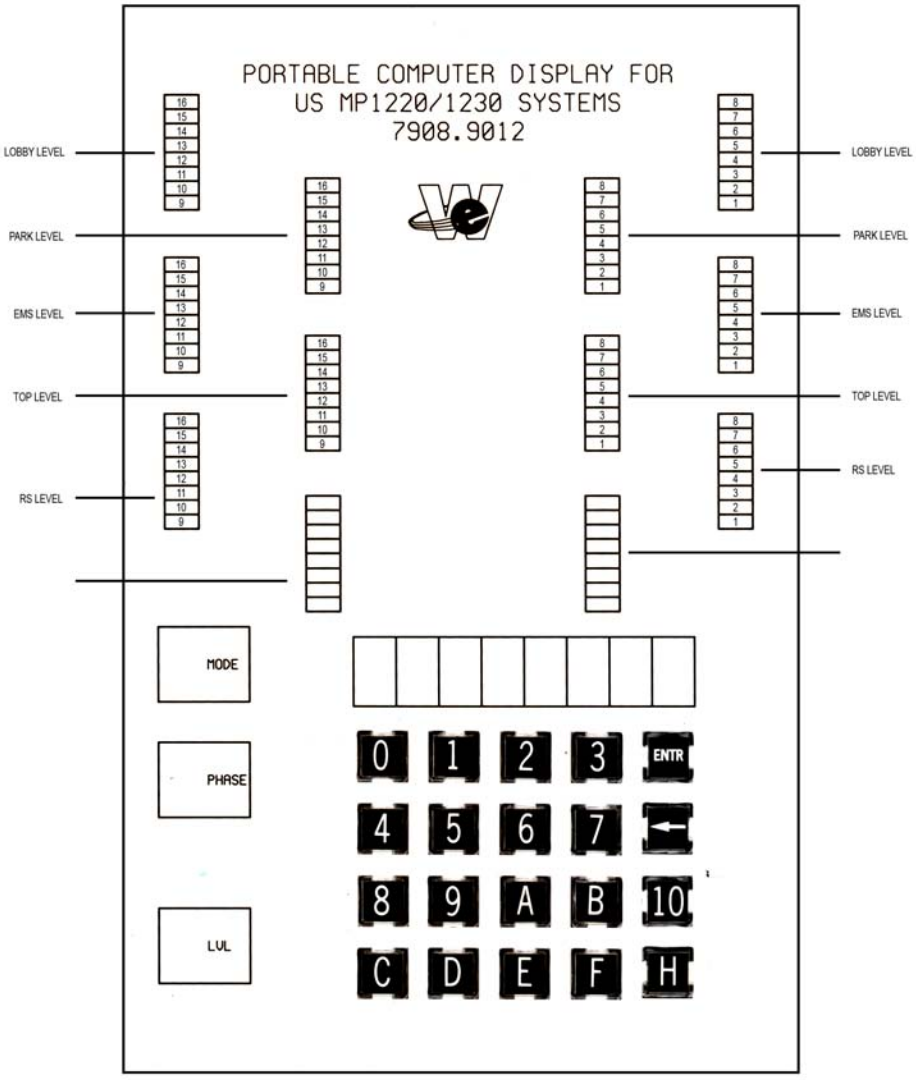


FIGURE 1-14
1220 DISPLAY E

PCD SIGNAL DEFINITIONS

Display 0 – Basic Control Signals

DISPLAY	COMPUTER I/O	SIGNAL DEFINITION
Group 0 – Control Signals		
MGR	Output	Motor Generator Request
UD	Output	Up direction request to SSD1
DD	Output	Down direction request to SSD1
HI	Output	High speed request to SSD1
SDL	Output	Slow down and landing
UPA	Output	Up arrow
DNA	Output	Down arrow
Group 1 – Answer Signals		
DP (HHC)	Internal*	Hold all hall calls
FHCA	Internal*	Front hall call answered
RHCA	Internal*	Rear hall call answered
DH	Internal*	Car is at “Drop high speed” point. (This means the car is going to stop at the next floor.)
FCCA	Internal*	Front car call answered
RCCA	Internal*	Rear car call answered
UPGF	Output	Signal to sound the front up gong
DNGF	Output	Signal to sound the front down gong

*Output to PCD only

TABLE 1-4

PCD SIGNAL DEFINITIONS

Display 0 – Basic Control Signals

DISPLAY	COMPUTER I/O	SIGNAL DEFINITION
Group 2 – SSD1 Control		
HIX	Output to SSD1	Not in high or intermediate speed
HI	Output to SSD1	High speed
INT	Output to SSD1	Intermediate speed
APR	Output to SSD1	Approach speed
RLVL	Output to SSD1	Relevel speed
LVL	Output to SSD1	Level speed
Group 3 – Drive Control		
UP	Output	Up drive
DN	Output	Down drive
WYE	Output	Wye starter signal
DEL	Output	Delta starter signal
LSM	Output	Low speed monitor
INSP	Output	Inspect output
DOZ	Output	Door open zone
PRD	Output	Power drive
Group 4 – Front Door Input		
DCB	Input	Indicates door closed button is pressed
DOB	Input	Indicates door open button is pressed
DCL	Input	When LED is lit, indicates door is NOT at door closed limit
DOL	Input	When LED is lit, indicates door is NOT at door open limit
SE	Input	Safety edge signal
SLB	Input	Safety light beam
Group 5 – Rear Door Input: Same as Group 4, except that all signals apply to rear door.		

TABLE 1-4 (Cont'd)

PCD SIGNAL DEFINITIONS

Display 0 – Basic Control Signals

DISPLAY	COMPUTER I/O	SIGNAL DEFINITION
Group 6 – Vane Signals		
STD	Input	Step down vane
LD	Input	Level down vane
DZ	Input	Door zone vane
LU	Input	Level up vane
STU	Input	Step up vane
Group 7 – Mode Input		
SAFR	Input	Safety string is broken – car will not move
INS	Input	Car is in inspection mode
ACC	Input	Car is in access mode
FE	Input	Fire emergency (Fire key switch in the lobby is set, bringing the car to the lobby floor)
FI	Input	Fireman's inspect
TEST	Input	Car is in test mode
LFE	Input	Lobby fire emergency (Indicates fire at the lobby – the car should land at the alternate service level)
Group 8 – Mode Input		
Park	Input	Security park the car at the lobby floor
EPO	Input	Indicates the building is on emergency power
EQ	Input	Indicates the earthquake detection circuit is set
EQH	Input	Earthquake hold (There has been a counterweight collision)

TABLE 1-4 (Cont'd)

PCD SIGNAL DEFINITIONS

Display 0 – Basic Control Signals

DISPLAY	COMPUTER I/O	SIGNAL DEFINITION
Group 9 – Terminal Slowdown Switches		
MGB	Input	Indicates the MG set is in Delta operation
RP	Input	Indicates the reverse phase relay is OK (energized)
T3U	Input	Car is on Terminal Slowdown switch #3 up
T3D	Input	Car is on Terminal Slowdown switch #3 dn
T1U	Input	Car is on Terminal Slowdown switch #1 up
T1D	Input	Car is on Terminal Slowdown switch #1 dn
UDL	Input	Car is at the up direction limit
DDL	Input	Car is at the down direction limit
Group 10 – Status Inputs		
BKWD	Input	Indicates brake watchdog contact
TKER	Input	Indicates tachometer error
BKS	Input	Brake switch signal
DLM	Input	Door lock contacts made
DGR	Input	Door gate relay
Group 11 – Status Inputs		
FICR	Input	Fireman's independent, call reset
IND	Input	Independent service
LW2	Input	Load weighing, 2nd switch
LW1	Input	Load weighing, 1st switch

TABLE 1-4 (Cont'd)

PCD SIGNAL DEFINITIONS

Display 1 – Fault Information

DISPLAY	COMPUTER I/O	SIGNAL DEFINITION
Groups 0-7 – Same as Display 0, Groups 0-7		
Group 8 – Stop Immediately Faults		
MLT	Internal*	Motor limit timer has expired (Motor has been running continuously for more than 4 minutes)
EQH	Input	Earthquake has caused counterweight collision
Group 9 – Recoverable Faults		
STCK	Internal*	Stuck car fault (Indicates the car has had an arrow for more than 2 minutes and has been unable to move. The car will go into fault mode to permit other cars to service zone. With motion or low of arrow, the car will recover from fault mode.)
PERS	Internal*	Indicates an error on Personality module (The car will run to the next landing, cycle its doors, and remain until the fault is changed.)
RP	Internal*	Indicates a problem with the reverse phase relay (The car will go out of service until the problem is resolved.)
Group 10 – Run to Next Level Faults		
EQ	Internal*	Indicates an earthquake (The fault has a lower priority than EQH.)

*Output to PCD only

TABLE 1-4 (Cont'd)

PCD SIGNAL DEFINITIONS

Display 1 – Fault Information

DISPLAY	COMPUTER I/O	SIGNAL DEFINITION
Group 11 – Warnings		
TSD	Internal*	Indicates both top & bottom terminal slowdown switches are set
LOST	Internal*	The car is unable to identify landing
DOCL	Internal*	Indicates both door open and closed limit signals are set at the same time
LVL	Internal*	Indicates both level up and level down signals are present
DLIM	Internal*	Indicates car on either up or down direction limit
DLCK	Internal*	Indicates door locks have been open more than 5 minutes
NOVN	Internal*	No vane (Indicates car is at rest but does not see a vane)

*Output to PCD only

TABLE 1-4 (Cont'd)

Display 2 – Front Call Information

DISPLAY	COMPUTER I/O	SIGNAL DEFINITION
Groups 0-1 – Car Calls	Input	
Groups 2-3 – Up Hall Calls	Input	
Groups 4-5 – Down Hall Calls	Input	
Groups 6-7 – Parking Calls	Input	The program places these calls if the parking jumper is set on the Personality module
Groups 8-9 – Test Calls	Input/Internal*	
Groups 10-11 – Call Mask	Internal*	This car can only answer hall calls at floors that are signaled (lit) in its call mask

*Output to PCD only

TABLE 1-4 (Cont'd)

Display 3 – Rear Call Information:

Same as Display 2, except that all information applies to the rear door.

PCD SIGNAL DEFINITIONS

Display 4 – Front Door Signals

DISPLAY	COMPUTER I/O	SIGNAL DEFINITION
Group 0 – Same as Display 0, Group 0		
Group 1 – Same as Display 0, Group 1		
Group 2 – Door Control		
NUD	Internal*	Nudging request
SLB	Internal*	Safety edge/light beam flag
DLL	Input	Door limit latch flag
DRQ	Internal*	Door request
Group 3 – Open Protect Timer		
	Internal*	Amount of time the door is driven open without reaching the door open limit before the door is again closed
Group 4 – Same as Display 0, Group 4		
Group 5 – Shut Protect Timer		
	Internal*	Amount of time the door is driven closed without reaching the door close limit before the door is again reopened
Group 6 – Door Output		
MDS	Output	Modify door speed
DC	Output	Door close
DO	Output	Door open
Group 7 – Shut Protect Reopen Timer		
	Internal*	Amount of time the door tries to reopen after the shut protect timer times out
Group 8 – Basic Timer	Internal*	Amount of time the door is held open
Group 9 – Light Beam Malfunction Timer		
	Internal*	Amount of time the light beams remain broken before it is considered malfunctioning and is ignored (17 seconds)
Group 10 – Reopen Timer		
	Internal*	Amount of time a door is held open following a reopen command (2 seconds)
Group 11 – Nudging Timer		
	Internal*	Amount of time before nudging begins (40 seconds)

*Output to PCD only

TABLE 1-4 (Cont'd)

PCD SIGNAL DEFINITIONS

Display 5 – Rear Door Signals: Same as Display 4, except signals apply to rear door.

Display 6 – Sequencing and Group Signals

DISPLAY	COMPUTER I/O	SIGNAL DEFINITION
Groups 0-1 – Same as Display 0, Groups 0 & 1		
Group 2 – Sequencing Inputs		
EPOL	Input	Indicates car needs to travel to emergency service level for Emergency Power operation
SEQA	Input	Indicates a duty car selected on emergency power
STRA	Input	Start request from the "A" car
SRTB	Input	Start request from the "B" car
Group 3 – Sequencing Outputs		
EPOD	Output	Indicates car needs to travel to emergency service level for Emergency Power operation
SEQ	Output	Indicates this car is duty car on emergency power
ST	Output	Indicates this car is engaging or is attempting to engage the Wye (A) starter
Group 4 – Group Inputs (The zone indication in this group is the value at the output port)		
ZB1	Input	Zone selected by the "B" car
ZB0	Input	
ZA1	Input	Zone selected by the "A" car
ZA0	Input	
MSB	Input	Indicates the "B" car is ready to communicate
MSA	Input	Indicates the "A" car is ready to communicate
ASB	Input	Indicates the "B" car is in automatic mode
ASA	Input	Indicates the "A" car is in automatic mode
Group 5 – Group Outputs		
MSEL	Output	Indicates this car is ready to communicate
ASEL	Output	Indicates this car is in automatic mode
ZS1	Output	Indicates the zone selected by this car
ZS0	Output	
Groups 6-7 – Same as Display 2, Groups 10-11		

TABLE 1-4 (Cont'd)

PCD SIGNAL DEFINITIONS

Display 6 – Sequencing and Group Signals (Cont'd)

DISPLAY	COMPUTER I/O	SIGNAL DEFINITION
Group 8 – Zone selection: Indicates zone selected by this car (Internal Signal)		
Group 9 – Car Number: Indicates the number assigned to this car on Personality module		
Group 10 – Flags		
OVR	Internal*	Overshoot flag
FRV	Internal*	First vane
FDH	Internal*	Force drop high
PVS	Internal*	Previous step on vane flag
FSS	Internal*	First step after door zone flag
EPL	Internal*	Flag to indicate car has been to designated service level (EPO response)
RLU	Internal*	Relevel last up direction
RLD	Internal*	Relevel last down direction
Group 11 – Additional Flags		
CAT	Internal*	Call at level flag
CAH	Internal*	Call ahead flag
CBH	Internal*	Call behind flag
RD	Internal*	Rear door program active flag
199	Internal*	Line 199 indicates car call or door open button was pressed

*Output to PCD only

TABLE 1-4 (Cont'd)

INSTRUCTIONS FOR USING PCD WITH U.S. MP-1230 SYSTEM

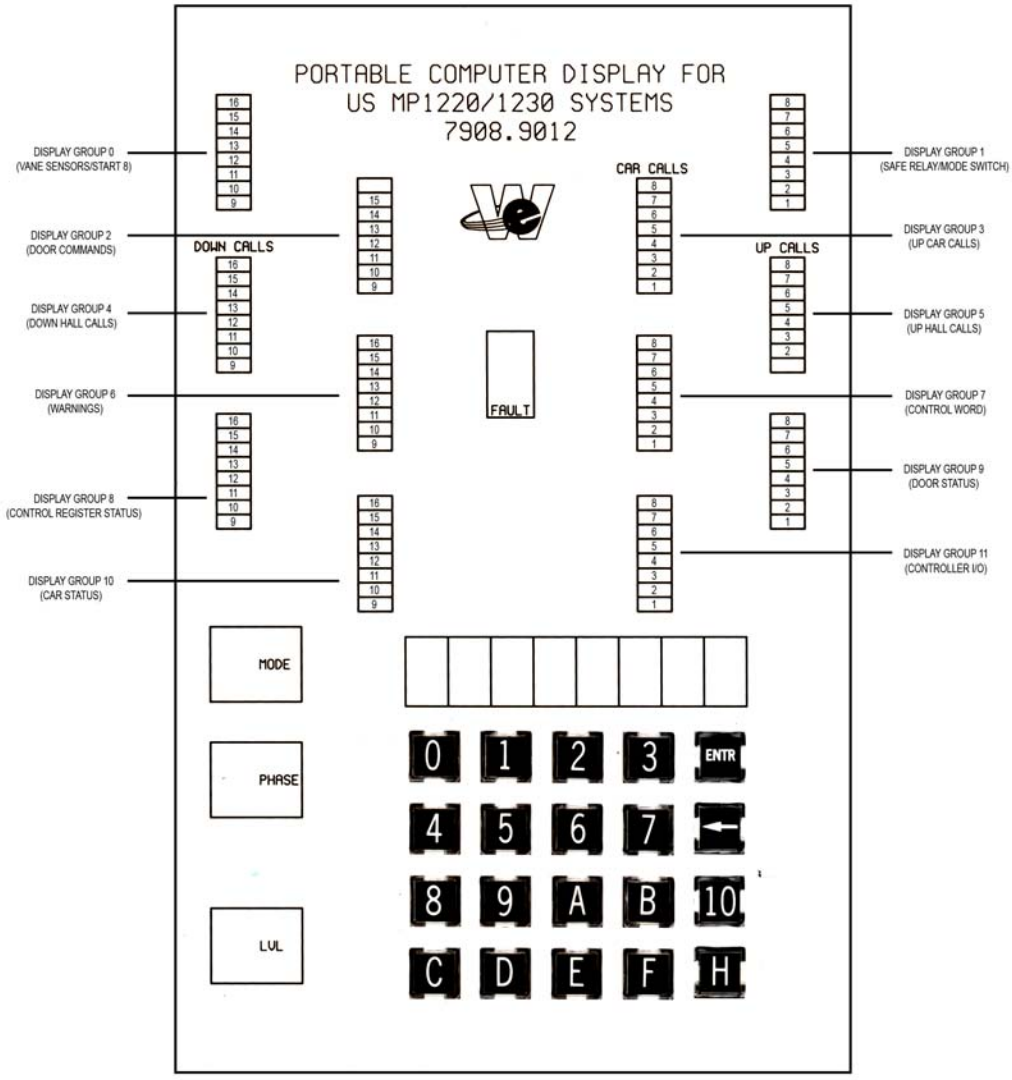


FIGURE 2-1
PORTABLE COMPUTER DISPLAY (PCD) COVER

PORTABLE COMPUTER DISPLAY The Portable Computer Display (PCD) is a specialized test instrument which interfaces with the computer (via connector PCD on Motherboard) to display elevator and controller performance and diagnostic information. (In effect, the PCD provides a convenient window into the computer.) The PCD control and indicator panel has three basic divisions:

1. Twelve groups of LEDs to identify signals input to and output from the computer.
2. Four numeric (seven-segment) displays for identification of operating modes and phases, floor levels, and faults.
3. Keyboard and associated displays which are not used in this application. Figure 2-1 shows the layout of the PCD display panel.

Diagnostic Codes The diagnostic codes reflect computer evaluation of test routines programmed into computer memory. The program tests for predetermined conditions that prevent normal elevator operation. When one of these conditions is detected, a different program routine takes corrective action, and the computer outputs a failure identification code for display on the PCD. Elevator performance failures are identified by "Warnings" and "Faults".

Mode of Operation Operating modes are determined by the settings of several operating switches (INSPECT, ACCESS, FIRE EMERGENCY, etc.). Mode switches are set in priority sequence. The highest priority mode is active at all times.

Phases of the Run The phase is the indicator that tells what the car is attempting to do as related to motion. Each different type of motion has a different phase. Unlike the mode, the phase is not priority indicator, but is rather a state indicator.

LED Displays The LED display groups (Figure 2-1) are identified by numbers from 0 to 11. With exceptions of Display Groups 6, 7, and 8, the displays represent I/O signals to the computer which are either generated by or destined for remote hardware. Display Groups 6, 7, and 8 represent output signals generated as a result of computer programming to report on various operating conditions or status. For input signals, a lit indicator means the computer acknowledges ("thinks") a switch is closed. Each display group is described briefly in the following paragraphs and, for easy reference; each indicator is listed and explained in Table 2-1.

NOTE: A design convention used on all series 1200 MP controllers is that if a light is on, a switch is closed.

Display Group 0 (STD, LD, DZ, LU, STU, MGB, TSD, DSD)
Indicators in this group represent signals input to the computer which originate primarily at the vane sensors. An exception in this group is MGB which indicates closure of the B contact in the run DELTA circuit. (The origin of each signal is listed in Table 2-1. Functional descriptions of each signal are included in Appendix, Table A-1).

Display Group 1 (SAFR, INS, ACC, FE, FI, TEST, IND, LFE)
Group 1 indicators identify signals input to the computer from safety-string-related relay contact, mode switch, and the lobby fire sensor contacts. (See Table 2-1 for signal origins, and refer to Appendix, Table A-1 for functional descriptions.)

Display Group 2 (DCL, DOB, SE, SLB, DCB, DOL, IAU, IAD)
Indicators in this group identify signals input to the computer primarily from switches and sensors related to door operation. However, indicators IAU and IAD relate to signals originating at switch on the car-top inspection station. (See Table 2-1, and refer to Appendix, Table A-1.)

Display Group 3 (CAR CALL, 8 through 1)
Group 4 indicators identify the floor level(s) selected by operating switches on the car operating panel (COP). (See Table 2-1, and refer to Appendix, Table A-1.)

Display Group 4 (DOWN CALLS, 8 through 2)
Indicators in this group represent "down" hall call signals received from the level(s) identified by the number on the indicator. (See Table 2-1, and refer to Appendix, Table A-1.)

Display Group 5 (UP CALLS, 7 through 1)
Indicators in this group represent "up" hall call signals received from the level(s) identified by the number on the indicator. (See Table 2-1, and refer to Appendix, Table A-1.)

Display Group 6 (WSD, LOST, DOL, LVL, NDZ)
Indicators in Group 6 identify "warnings". A warning represents a situation (usually temporary) that stops elevator operation until the problem is resolved, usually through controller action. When the problem is resolved, the elevator will automatically resume operation. (See Table 2-2 PCD Warning Codes.)

Display Group 7 (MGR, DD, UD, DH, HI, LVL, ↑, ↓)
Indicators in this group identify signals generated by the control word in computer memory and are important in troubleshooting because they represent basic commands issued internally by the computer. (See Table 2-1)

Display Group 8 (POR, DEL, WYE, HS, RSO, DOZ, UP, DN)
With exception of POR, these indicators identify status of the control register and in conjunction with the control-word indicators (Group 8), tell exactly what the elevator is trying to do. Indicator POR identifies an internal computer function. (See Table 2-1.)

Display Group 9 (FEL, NUD, DC, DO, (Blank), SEF, DLL, DRQ)
Indicators in this group relate to door status and door commands. (See Table 2-1.)

Display Group 10 (DP, HF, HR, HRV, CF, CR, UPG, DNG)
Indicators in this group identify car status and commands to be issued because the car is stopping. (See Table 2-1.)

Display Group 11 (FIS, FIR, HRV, FEL, NUD, MDS, DC, DO)
Indicators in this group identify operating states, computer input signals, and output commands. Indicators FIS and FIR indicate when the controller is able to set into or out of fireman's service (based on conditions of car operation). Indicator HRV is lit by the same signal which lights HRV in Group 11; however, in this group, HRV indicates the actual output to the port which drives the transistor to apply 48C power to the hall riser. Indicator FEL represents the output drive signal to the fire emergency light. Indicator NUD identifies the nudging command. [Indicator MDS (Modified Door Speed) is not used in this system.] (See Table 2-1.)

Seven-Segment Numeric Displays (MODE, PHASE, LVL, FAULT)
Locations of the numeric displays are shown in Figure 2-1. PCD Panel.

Mode The mode is designated by a number which ranges from 0 through D (hexadecimal), the smaller the number, the higher the priority of the mode. Table 2-3 lists the modes of operation and designations.

Phase Phases are numbered from 0 through C (hexadecimal); Table 2-4 identifies the phases of operation.

Level (LVL) Numerals 1 through 8 represent the level in the building at which the car arrives. (By chance, if the level isn't displayed, the indication is that the car is lost. Check the LOST warning indicator in Display Group 6.)

Fault Numeric codes from 0 through 8 identify faults causing the elevator to be placed out of operation by the controller until the fault is corrected by maintenance personnel. Table 2-5 lists the fault codes and required maintenance actions or controller responses for each.

PCD SIGNAL DEFINITIONS

Displays	I/O	Signal Origin	Comment
Group 0 – Vane Signals			
STD	Input	Down Stepping Vane Sensor (magnetic switch	Car is on STD sensor
LD	Input	Level Down Vane Sensor (magnetic switch)	Car is on LD sensor
DZ	Input	Door Zone Vane Sensor (magnetic switch)	Car is on DZ sensor
LU	Input	Level Up Vane Sensor (magnetic switch)	Car is on LU sensor
STU	Input	Step Up Vane Sensor (magnetic switch)	Car is on STU sensor
MGB	Input	Pump Motor "B" Contact for Delta mode	Pump is applied to run DELTA
TSD	Input	Top (or UP) Slow Down Switch (cam operated)	Set to operate when on STU
DSD	Input	Down Slow Down Switch (cam operated)	Set to operate when on STD
Group 1 – Mode Input			
SAFR	Input	SAFR Relay (on Power Relay Assembly)	Relay energized through transistor Q5 and signal is output to computer through FET Q8 on A1 Drive Interface
INS	Input	INS Switch (on Car-Top Pendant station) INS Relay (on A1 Drive Interface module)	
ACC	Input	ACC Switch (on Car Panel CP2) ACC Relay (on A1 Drive Interface module)	
FE	Input	Fire Smoke Sensor contacts	
FI	Input	FI Switch (on Car Panel CP2) FI Relays, Set and reset (on A1 Drive Interface)	
TEST	Input	TEST Switch (on Motherboard)	
IND	Input	IND Switch (on Car Operating Panel)	
LFE	Input	Lobby Smoke Sensor contacts	

TABLE 2-1

PCD SIGNAL DEFINITIONS (Cont'd)

Displays	I/O	Signal Origin	Comment
Group 2 – Front Door			
DCL	Input	DCL Switch (on car door)	
DOB	Input	DOB Switch (on Car Operating Panel)	
SE	Input	SE Switch (on car door)	
SLB	Input	SLB Sensor contacts (on car door)	
DCB	Input	DCB Switch (on Car Operating Panel)	
DOL	Input	DOL Switch (on car door)	
IAU	Input	IAU Relay contacts (on A1 Drive Interface)	Relay is energized by INSS or ACC switch signals
Group 3 – Front Car Calls			
1 to 8	Input	CC1 through CC8 switches (on Car Operating Panel)	
Group 4 – Front Down Calls			
8 to 2	Input	DC2 through DC8 switches (on hall switch panel)	
Group 5 – Front Up Calls			
7 to 1	Input	UC1 through UC7 switches (on hall switch panel)	
Group 6 – Warnings			
Note: Warning displays and the related conditions sensed by the computer are identified in Table 2-2.			

TABLE 2-1

PCD SIGNAL DEFINITIONS (Cont'd)

Displays	I/O	Signal Origin	Comment
Group 7 – Control Signals			
MGR	Output*	A2 computer (Control word generated commands)	Indicates a request to energize the motor-generator / pump (start in Wye and transfer to Delta after about 2 seconds)
DD	Output*	A2 computer (Control word generated commands)	Indicates the direction commanded is down
UD	Output*	A2 computer (Control word generated commands)	Indicates the direction commanded is up
DH	Output	A2 computer	Flashing light indicates car is in position to permit a command to de-energize the HS Relay (Power Relay module) and as a result drop either the UP or DN solenoids (depending on which circuit is active)
HI	Output*	A2 computer (Control word generated commands)	Indicates a command to energize the HS Relay (Power Relay module) **Note: HS contacts transfer in both the up and down solenoid valve-control circuits; however, power to those solenoids is dependent on closure of other relay contacts in each of those circuits**

*Output to PCD only

TABLE 2-1

PCD SIGNAL DEFINITIONS (Cont'd)

Displays	I/O	Signal Origin	Comment
Group 7 – Control Signals (Cont'd)			
LVL	Output*	A2 Computer (Control word generated commands)	Indicates a command to level up or down.
↑ ↓	Output*	A2 Computer (Control word generated commands)	Indicates next direction of elevator travel when car is stopped. When running in high speed, indicates direction of motion. **Note: The direction indicated does not necessarily match the direction the car is moving in slow speed. (i.e., An opposite direction may be commanded as a landing is approached.)**
Group 8 – Drive Control			
POR	Output*	Internal Computer signal	
DEL	Output	Computer command to energize DELTA Relay	
WYE	Output	Computer command to energize WYE Relay	
HS	Output	Computer command to energize HS Relay	
RSO	Output	Computer command to override Run/Stop switch (on Car Operating Panel)	FE contact must be closed.
DOZ	Output	Computer command to override door	DZ must be closed.
UP	Output	Computer command to UP Relay	Results in energizing UP STOP solenoid to close valve and run car up.
DN	Output	Computer command to DN Relay	Results in energizing DOWN LEVEL solenoid to open valve and run car down.

*Output to PCD only

TABLE 2-1

PCD SIGNAL DEFINITIONS (Cont'd)

Displays	I/O	Signal Origin	Comment
Group 9 – Front Door Outputs & Central Display			
FEL	Output	Computer command to Fire Emergency Light (on Car Operating Panel)	
NUD	Output	Computer command to Nudging Buzzer (on Car Operating Panel)	
DC	Output	Computer command to close door	Results in energizing DC Relay.
DO	Output	Computer command to open door	Results in energizing DO Relay.
SEF	Input	SLBF photo sensor contacts	
DLL	Output*	A2 Computer (Control word generated command)	Indicates door reached full open position and is not yet closed.
DRQ	Output*	A2 Computer (Control word generated command)	Indicates a request to open door(s) when car stops.
Group 10 – Answer Signals			
DP	Output*	A2 Computer (Control word generated command)	Indicates a control decision to continue to a destination and will not change that decision until the doors have cycled at that destination.
HF/HR	Output*	A2 Computer (Control word generated command)	Indicates intent to answer a hall call (front or rear); doors will remain open for a longer-than-normal period.
HRV	Output*	A2 Computer (Control word generated command)	Indicates intent to control in automatic mode and, as a result, apply power to the hall riser to operate call lamps.

*Output to PCD only

TABLE 2-1

PCD SIGNAL DEFINITIONS (Cont'd)

Displays	I/O	Signal Origin	Comment
Group 10 – Answer Signals (Cont'd)			
CF/CR	Output*	A2 Computer (Control word generated command)	Indicates intent to answer a car call (front and/or rear).
UPG/DNG	Output	Computer command to energize UPG and DNG relays	Indicates intent to activate a gong to call attention to next direction of travel.
Group 11 – Misc. Output Signals			
FIS/FIR	Output	Computer generated "permissive" signal to Fireman's Service Control circuit	Indicates when the controller is able to set into and out of fireman's service (based on conditions of car operation).
HRV	Output	Computer command to activate Hall Riser Voltage	Indicator HRV is lit by the same signal which lights HRV in Group 11; however, in this group, HRV indicates the actual output to the port which drives the transistor to apply 48C power to the hall riser.
FEL	Output	Computer command to turn on fire emergency light	Represents the output drive signal to the fire emergency light.
NUD	Output	A2 Computer	Identifies the nudging command.
MDS	Output	A2 Computer	Modify the door speed (MDS). Output to energize MDS relay for the nudging operation. (Used only for MOM, MOA door operators.)

*Output to PCD only

TABLE 2-1

PCD WARNING CODES

Warning	Condition	Action Taken
WSD	Both TSD and DSD are open at the same time	The car will not begin a run until the problem is corrected.
LOST	The position of the car is unknown	The car will run to the bottom level, unless at the top in door zone, and re-establish its position.
DOL	Both DOL and DCL are open at the same time	The car will not begin a run until the problem is corrected.
LVL	Both LVLUP and LVLDN are closed at the same time	The car will not begin a run until the problem is corrected.
NDZ	Door zone was not found where expected	The car will run to the bottom level.

TABLE 2-2

OPERATING MODES

Mode	Mode Name
0	Restart
1	Inspect
2	Access
3	Fire Independent
4	Fault
5	Test
6	Emergency Power
7	Fire Return
8	Test Request
9	Secure Park
A	Independent
B	Special Service I
C	Special Service II
D	Automatic Operation

TABLE 2-3

PHASES OF OPERATION

Phase	Phase Name
0	Fault
1	Shutdown
2	Lost Position
3	Wakeup
4	Rest
5	Relevel Down
6	Recover Down
7	Level Down
8	High Down
9	Relevel Up
A	Recover Up
B	Level Up
C	High Up

TABLE 2-4

PCD FAULT CODES

Code	Condition	Action Taken
0, 1, 2, 3	One of the program's EPROMS is incorrect	The elevator is shut down where it is; no further action is taken.
4	A warning exists	Refer to Warning Summary (Table 2-2)
5	The motor limit timer has expired	The car is run to the lowest level if safe and the door is opened.
6	The options selected on the personality module are incorrect	The elevator is shut down where it is; no further action is taken.
7	The car has attempted to start and has failed six times in twenty seconds	The car is run to the lowest level if safe and then the door is opened.
8	The reverse phase relay has dropped	The car is run to the lowest level if safe and then the door is opened.

TABLE 2-5

APPENDIX

SIGNAL DEFINITIONS

NOTE

The active signal states listed in the following tables indicate NEGATIVE LOGIC (i.e., 1 = 0 to 1.5V and 0 = 3.5 to 5V)

A2 INPUT SIGNAL DETAIL

Table A-1 lists information concerning the function of all input signals located on the A2 Computer Module. Each signal listing includes name, active state, and function when the signal is in its active state.

A2 INPUT SIGNAL FUNCTIONS

Name	Active State	Function When Active
STD	1	Step Down – indicates that the car is on a down stepping vane.
LD	1	Level Down – indicates that the car is in the level down position. The car is between 0.375" above and 8.375" above the floor.
DZ	1	Door Zone – indicates that the car is between 4.0" above and 4.0" below the floor; when used with LU and LD the floor level may be determined.
LU	1	Level Up – indicates that the car is in the level up position. The car is between 0.375" below and 8.375" below the floor.
STU	1	Step Up – indicates that the car is on an up stepping vane.
MGB	1	B contact closed – indicates that the "B" contact is closed and that the starter is in the Delta configuration.
TSD	0	Top Slow Down – indicates that the car is at or above the STU point for the top level.
DSD	0	Down Slow Down – indicates that the car is at or below the STD point for the bottom level.
SAFR	1	Safe to Run – indicates that the Safety String is made and car door and hallway doors are closed. The top and bottom hall doors may be overridden by the top and bottom access switches. The car door may be overridden by (IAU + IAD) *ACC. The emergency stop switch may be overridden by RSO.
INS	0	Inspect – indicates that the car-top inspect station switch is open. Commands Inspect Mode.
ACC	1	Access – indicates that the access switch located in the Car Operating Panel is closed. Commands Access Mode.
FE	1	Fire Emergency – indicates that the FE switch located in the lobby or some other fire signal is closed. Commands Fire Return (Phase I) mode.
FI	1	Fire Independent – indicates that the FI switch located in the Car Operating Panel is closed. May command Fireman's Independent (Phase II) mode under the proper circumstances.
TEST	1	Test – indicates that the test switch located in the controller is closed. This commands test mode under the proper circumstances.

TABLE A-1

A2 INPUT SIGNAL FUNCTIONS (Cont'd)

Name	Active State	Function When Active
IND	1	Independent – indicates that the independent switch located in the Car Operating Panel is closed. This commands Independent mode.
LFE	1	Lobby Fire Emergency – indicates that the smoke sensor at the lobby is operated.
SIN8	1	Spare Input 8
SIN7	1	Spare Input 7
SIN6	1	Spare Input 6
SIN5	1	Spare Input 5
SIN4	1	Spare Input 4
SIN3	1	Spare Input 3
LW	1	
LOAD	1	
DCLF*	0	Door Closed Limit Front – indicates that the car door is closed.
DOBF*	1	Door Open Button Front – car operating panel signal indicating that a passenger wishes the door to open.
SEF*	1	Safety Edge Front – indicates that the door safety edge is pushed by someone or something blocking door.
SLBF*	1	Safety Light Beam Front – indicates that something is blocking the light beam which is located between the doors.
DCBF*	1	Door Close Button Front – car operating panel signal indicating that a passenger wishes the door to close.
DOLF*	0	Door Open Limit Front – indicates that the door is within 1" of being fully open.
IAU	1	Inspect/Access Up – indicates that the up push-button on the car-top inspect station is closed while in inspect mode or the top or bottom access up switch is closed.
IAD	1	Inspect/Access Down – indicates that the down push-button on the car-top inspect station is closed while in inspect mode or the top or bottom access down switch is closed.
PER8 – PER1	Personality Input Data Bits.	

*The letter "F" denotes "Front" and when applicable is replace by "R" to denote "Rear".

TABLE A-1

A2 INPUT SIGNAL FUNCTIONS (Cont'd)

Name	Active State	Function When Active
CC8	1	Car Call, level 8 – indicates an eighth level car call has been registered on the car operating panel.
CC7	1	Car Call, level 7
CC6	1	Car Call, level 6
CC5	1	Car Call, level 5
CC4	1	Car Call, level 4
CC3	1	Car Call, level 3
CC2	1	Car Call, level 2
CC1	1	Car Call, level 1
DC8	1	Down Hall Call, level 8 – indicates that the down hall call button is pushed at the eighth level.
DC7	1	Down Hall Call, level 7
DC6	1	Down Hall Call, level 6
DC5	1	Down Hall Call, level 5
DC4	1	Down Hall Call, level 4
DC3	1	Down Hall Call, level 3
DC2	1	Down Hall Call, level 2
FICR	1	Fire Independent Call Reset – causes the car calls to be cancelled when operated provided the car is operating in Fire Independent Mode (Phase II).
RP	1	Reverse Phase – indicates the phasing of incoming power is correct. Incorrect phasing or loss of any phase will cause this signal to become inactive.
UC7	1	Up Hall Call, level 7 – indicates that the up hall call button is pushed at the seventh level.
UC6	1	Up Hall Call, level 6
UC5	1	Up Hall Call, level 5
UC4	1	Up Hall Call, level 4
UC3	1	Up Hall Call, level 3
UC2	1	Up Hall Call, level 2
UC1	1	Up Hall Call, level 1

TABLE A-1

A2 OUTPUT SIGNAL FUNCTIONS (REV-F)

Table A-2 lists information concerning the function of output signals. Each signal listing includes name, active state, and function when the signal is in its active state.

A2 OUTPUT SIGNAL FUNCTIONS

Name	Active State	Function When Active
PS4	1	Personality Select 4, used in scanning the personality data.
PS3	1	Personality Select 3.
PS2	1	Personality Select 2.
PS1	1	Personality Select 1.
UPG	1	Up Gong and Lantern – lights the up lantern and rings the front gong.
DNG	1	Down Gong and Lantern – lights the down lantern and rings the front gong.
UPA	1	Up arrow – lights the up arrow lamp, indicating the next direction of travel of the car.
DNA	1	Down arrow – lights the down arrow lamp, indicating the next direction of travel of the car.
ECC8	1	Enable Car Call, level 8 – lights the car call lamp for the eighth level indicating that the car call has been registered.
ECC7	1	Enable Car Call, level 7.
ECC6	1	Enable Car Call, level 6.
ECC5	1	Enable Car Call, level 5.
ECC4	1	Enable Car Call, level 4.
ECC3	1	Enable Car Call, level 3.
ECC2	1	Enable Car Call, level 2.
ECC1	1	Enable Car Call, level 1.
EDC8	1	Enable Down Hall Call, level 8 – lights the eighth level Hall Call lamp indicating that the call has been registered.
EDC7	1	Enable Down Hall Call, level 7.
EDC6	1	Enable Down Hall Call, level 6.
EDC5	1	Enable Down Hall Call, level 5.
EDC4	1	Enable Down Hall Call, level 4.
EDC3	1	Enable Down Hall Call, level 3.
EDC2	1	Enable Down Hall Call, level 2.

TABLE A-2

A2 OUTPUT SIGNAL FUNCTIONS (Cont'd)

Name	Active State	Function When Active
SO1		Spare Output 1
SO2		Spare Output 2
EUC7	1	Enable Up Hall Call, level 7.
EUC6	1	Enable Up Hall Call, level 6.
EUC5	1	Enable Up Hall Call, level 5.
EUC4	1	Enable Up Hall Call, level 4.
EUC3	1	Enable Up Hall Call, level 3.
EUC2	1	Enable Up Hall Call, level 2.
EUC1	1	Enable Up Hall Call, level 1.
POR	0	Power On Restart – resets the 555 watchdog timer to prevent the 8085 from being restarted. Must be pulsed once every 50 ms or less for normal operation.
DELTA	1	Delta – causes the "B" contact to be energized, driving the pump motor in the Delta configuration.
WYE	1	Wye – causes the "A" contact to be energized, driving the pump motor in the Wye configuration.
HS	1	High Speed – causes the up or down valve to be operated to move the car at high speed.
RSO	1	Run-Stop Override – overrides the car operating panel mounted Run-Stop Switch.
DOZ	1	Maintains the safety string while any hall door lock is open, or while the car door is open, providing that the car is in Door Zone (DZ).
UP	1	Up – commands up direction and causes the up stop valve to be closed.
DN	1	Down – commands down direction and causes the down level valve to be opened.
PI8	1	Position Indicator, level 8 – lights the car position indicator for the eighth level.
PI7	1	Position Indicator, level 7.
PI6	1	Position Indicator, level 6.
PI5	1	Position Indicator, level 5.
PI4	1	Position Indicator, level 4.
PI3	1	Position Indicator, level 3.
PI2	1	Position Indicator, level 2.
PI1	1	Position Indicator, level 1.

TABLE A-2

A2 OUTPUT SIGNAL FUNCTIONS (Cont'd)

Name	Active State	Function When Active
FIS	1	Fire Independent Set – allows the Fire Independent relay to be set.
FIR	1	Fire Independent Reset – allows the Fire Independent relay to be reset.
HRV	1	Hall Riser Voltage – enables the 48C voltage by turning on Q15 and Q17.
FEL	1	Fire Emergency Light – lights the "Fire Emergency Return to Lobby" lamp located in the car operating panel.
NUD	1	Nudging – causes the nudging buzzer to be operated.
MDSF*	1	Modify Door Speed – causes the door to operate slowly.
DCF*	1	Door Close Front – causes the door operator relay DC coil to be energized. This will cause the door to be driven closed if the SAFD is energized.
DOF*	1	Door Open Front – causes the door operator relay DO coil to be energized. This will cause the door to be driven open if the SAFD is energized.

*The letter "F" denotes "Front" and when applicable is replaced by "R" to denote "Rear".

TABLE A-2

A3 INPUT SIGNAL DETAIL

Table A-3 lists information concerning functions of input signals located on the A3 Option Module. Each signal listing includes name, active state, and function when the signal is in its active state.

A3 INPUT SIGNAL FUNCTIONS

Name	Active State	Function When Active
ZSIN4	1	"A" Car Zone Selected MSB.
ZSIN3	1	"A" Car Zone Selected LSB.
ZSIN2	1	"B" Car Zone Selected MSB.
ZSIN1	1	"B" Car Zone Selected LSB.
MSIN2	1	"A" Car Multiplex Synchronized Input.
MSIN1	1	"B" Car Multiplex Synchronized Input.
ASIN2	1	"A" Car Automatic Synchronized Input.
ASIN1	1	"B" Car Automatic Synchronized Input.
SC8	1	Security, level 8 – disables the answering of car calls at the eighth level when active. Also disables door operation at that level.
SC7	1	Security, level 7.
SC6	1	Security, level 6.
SC5	1	Security, level 5.
SC4	1	Security, level 4.
SC3	1	Security, level 3.
SC2	1	Security, level 2.
SC1	1	Security, level 1.
HS8	1	Hospital/Hotel Service, level 8 – indicates that a hospital or hotel service call exists at the eighth level.
HS7	1	Hospital/Hotel Service, level 7.
HS6	1	Hospital/Hotel Service, level 6.
HS5	1	Hospital/Hotel Service, level 5.
HS4	1	Hospital/Hotel Service, level 4.
HS3	1	Hospital/Hotel Service, level 3.
HS2	1	Hospital/Hotel Service, level 2.
HS1	1	Hospital/Hotel Service, level 1.

TABLE A-3

A3 INPUT SIGNAL FUNCTIONS (Cont'd)

Name	Active State	Function When Active
DCLR	0	Door Closed Limit Rear – indicates that the car door is closed.
DOBR	1	Door Open Button Rear – car operating signal indicating that a passenger wishes the door to open.
SER	1	Safety Edge Rear – indicates that the door safety edge is pushed by someone or something is blocking the door.
SLBR	1	Safety Light Beam Rear – indicates that something is blocking the light beam which is located between the doors.
DCBR	1	Door Close Button Rear – car operating panel signal indicating that a passenger wishes the door to close.
DOLR	1	Door Open Limit Rear – indicates that the door is within 1 inch of being fully open.
RCC8	1	Rear Car Call, level 8 – indicates that an eighth level rear car call has been registered on the car operating panel.
RCC7	1	Rear Car Call, level 7.
RCC6	1	Rear Car Call, level 6.
RCC5	1	Rear Car Call, level 5.
RCC4	1	Rear Car Call, level 4.
RCC3	1	Rear Car Call, level 3.
RCC2	1	Rear Car Call, level 2.
RCC1	1	Rear Car Call, level 1.
RDC8	1	Rear Down Hall Call, level 8 – indicates that the eighth level rear down hall call button is operated.
RDC7	1	Rear Down Hall Call, level 7.
RDC6	1	Rear Down Hall Call, level 6.
RDC5	1	Rear Down Hall Call, level 5.
RDC4	1	Rear Down Hall Call, level 4.
RDC3	1	Rear Down Hall Call, level 3.
RDC2	1	Rear Down Hall Call, level 2.
RUC7	1	Rear Up Hall Call, level 7.
RUC6	1	Rear Up Hall Call, level 6.
RUC5	1	Rear Up Hall Call, level 5.
RUC4	1	Rear Up Hall Call, level 4.
RUC3	1	Rear Up Hall Call, level 3.
RUC2	1	Rear Up Hall Call, level 2.
RUC1	1	Rear Up Hall Call, level 1.

TABLE A-3

A3 OUTPUT SIGNAL DETAIL

Table A-4 lists information concerning functions of output signals located on the A-3 Option Module. Each signal listing includes name, active state, and interpretation when the signal is in its active state.

A3 OUTPUT SIGNAL FUNCTIONS

Name	Active State	Function When Active
MSEL	1	Multiplex Synchronize Request – indicates that this car is ready to begin group selection operation.
ASEL	1	Automatic Select – indicates to the other cars in the group that this car is in automatic operation and ready for dispatch.
ZSEL 2/1	1	Zone Select 2, 1 – Binary code for the zone selected. 00 = No Zone 01 = Zone 1 10 = Zone 2 11 = Zone 3
MDSR	1	Modify Door Speed Rear – causes the rear door to open or close slowly when operated.
DCR	1	Door Close Rear – causes the rear door operator DC coil to be energized. This will cause the door to be driven closed if SAFD is energized.
DOR	1	Door Open Rear – causes the rear door operator DO coil to be energized. This will cause the door to be driven open if SAFD is energized.
HPI8	1	Hall Position Indicator, level 8 – lights the hall position indicator for the eighth level.
HPI7	1	Hall Position Indicator, level 7.
HPI6	1	Hall Position Indicator, level 6.
HPI5	1	Hall Position Indicator, level 5.
HPI4	1	Hall Position Indicator, level 4.
HPI3	1	Hall Position Indicator, level 3.
HPI2	1	Hall Position Indicator, level 2.
HPI1	1	Hall Position Indicator, level 1.

TABLE A-4

A3 OUTPUT SIGNAL FUNCTIONS (Cont'd)

Name	Active State	Function When Active
ERC8	1	Enable Rear Car Call, level 8 – lights the rear car call lamp for the eighth level indicating that the car call has been registered.
ERC7	1	Enable Rear Car Call, level 7.
ERC6	1	Enable Rear Car Call, level 6.
ERC5	1	Enable Rear Car Call, level 5.
ERC4	1	Enable Rear Car Call, level 4.
ERC3	1	Enable Rear Car Call, level 3.
ERC2	1	Enable Rear Car Call, level 2.
ERC1	1	Enable Rear Car Call, level 1.
ERD8	1	Enable Rear Down Hall Call, level 8 – lights the eighth level rear Hall Call lamp indicating that the call has been registered.
ERD7	1	Enable Rear Down Hall Call, level 7.
ERD6	1	Enable Rear Down Hall Call, level 6.
ERD5	1	Enable Rear Down Hall Call, level 5.
ERD4	1	Enable Rear Down Hall Call, level 4.
ERD3	1	Enable Rear Down Hall Call, level 3.
ERD2	1	Enable Rear Down Hall Call, level 2.
RDNG	1	Rear Down Gong and Lantern – lights the rear down lantern and gong.
RUPG	1	Rear Up Gong and Lantern – lights the rear up lantern and gong.
ERU7	1	Enable Rear Up Hall Call, level 7.
ERU6	1	Enable Rear Up Hall Call, level 6.
ERU5	1	Enable Rear Up Hall Call, level 5.
ERU4	1	Enable Rear Up Hall Call, level 4.
ERU3	1	Enable Rear Up Hall Call, level 3.
ERU2	1	Enable Rear Up Hall Call, level 2.
ERU1	1	Enable Rear Up Hall Call, level 1.

TABLE A-4