

# **MOTION CONTROL** **ENGINEERING**

## **Element Series™** **Element Hydro™ Elevator Control** **USER GUIDE**





**Motion Control Engineering  
11380 White Rock Road  
Rancho Cordova, CA 95742**

**voice 916 463 9200**

**fax 916 463 9201**

**<https://acim.nidec.com/elevators/motion-control-engineering>**

**Element Series™**

**Element Hydro™ Elevator Control**



---

## **Copyright**

This document is owned and copyrighted by Motion Control Engineering. All Rights Reserved. Upon request by Motion Control Engineering, this document must be returned to Motion Control Engineering. ©Motion Control Engineering 2024.

## **Trademarks**

All trademarks or registered product names appearing in this document are the exclusive property of the respective owners.

## **Warning and Disclaimer**

Although every effort has been made to make this document as complete and accurate as possible, Motion Control Engineering and the document authors, publishers, distributors, and representatives have neither liability nor responsibility for any loss or damage arising from information contained in this document or from informational errors or omissions. Information contained in this document shall not be deemed to constitute a commitment to provide service, equipment, or software by Motion Control Engineering or the document authors, publishers, distributors, or representatives.

## **Limited Warranty**

Motion Control Engineering (manufacturer) warrants its products for a period of 15 months from the date of shipment from its factory to be free from defects in workmanship and materials. Any defect appearing more than 15 months from the date of shipment from the factory shall be deemed to be due to ordinary wear and tear. Manufacturer, however, assumes no risk or liability for results of the use of the products purchased from it, including, but without limiting the generality of the forgoing: (1) The use in combination with any electrical or electronic components, circuits, systems, assemblies or any other material or equipment (2) Unsuitability of this product for use in any circuit, assembly or environment. Purchasers' rights under this warranty shall consist solely of requiring the manufacturer to repair, or in manufacturer's sole discretion, replace free of charge, F.O.B. factory, any defective items received at said factory within the said 15 months and determined by manufacturer to be defective. The giving of or failure to give any advice or recommendation by manufacturer shall not constitute any warranty by or impose any liability upon the manufacturer. This warranty constitutes the sole and exclusive remedy of the purchaser and the exclusive liability of the manufacturer, AND IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESSED, IMPLIED, OR STATUTORY AS TO MERCHANTABILITY, FITNESS, FOR PURPOSE SOLD, DESCRIPTION, QUALITY PRODUCTIVENESS OR ANY OTHER MATTER. In no event will the manufacturer be liable for special or consequential damages or for delay in performance of this warranty.

Products that are not manufactured by MCE (such as drives, CRTs, modems, printers, etc.) are not covered under the above warranty terms. MCE, however, extends the same warranty terms that the original manufacturer of such equipment provide with their product (refer to the warranty terms for such products in their respective manual).

## **End User License Agreement**

This End User License Agreement ("Agreement") grants you the right to use the software contained in this product (the "Software") subject to the following restrictions: You may not: (i) copy the Software, except for archive purposes consistent with your standard archive procedures; (ii) transfer the Software to a third party apart from the entire product; (iii) modify, decompile, disassemble, reverse engineer or otherwise attempt to derive the source code of the Software; (iv) export the Software or underlying technology in contravention of applicable U.S. and foreign export laws and regulations; and (v) use the Software other than in connection with operation of the product.

"LICENSOR'S SUPPLIERS DO NOT MAKE OR PASS ON TO END USER OR ANY OTHER THIRD PARTY, ANY EXPRESS, IMPLIED OR STATUTORY WARRANTY OR REPRESENTATION ON BEHALF OF SUCH SUPPLIERS, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, TITLE, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE."

## Important Precautions and Useful Information

This preface contains information that will help you understand and safely maintain MCE equipment. We strongly recommend you review this preface and read this manual before installing, adjusting, or maintaining Motion Control Engineering equipment. This preface discusses:

- Safety and Other Symbol Meanings
- Safety Precautions
- [Environmental Considerations](#)
- [In this manual](#)

## Safety and Other Symbol Meanings



### **Danger**

This manual symbol is used to alert you to procedures, instructions, or situations which, if not done properly, might result in personal injury or substantial equipment damage.



### **Caution**

This manual symbol is used to alert you to procedures, instructions, or situations which, if not done properly, might result in equipment damage.



This manual symbol is used to alert you to instructions or other immediately helpful information.

## Safety Precautions



### **Danger**

This equipment is designed to comply with ASME A17.1, National Electrical Code, CE, and CAN/CSA-B44.1/ASME-A17.5 and must be installed by a qualified contractor. It is the responsibility of the contractor to make sure that the final installation complies with all local codes and is installed in a safe manner.

This equipment is suitable for use on a circuit capable of delivering not more than 10,000 rms symmetrical amperes, 600 volts maximum. The three-phase AC power supply to the controller must originate from a fused disconnect switch or circuit breaker sized in conformance to all applicable national, state, and local electrical codes in order to provide the necessary motor branch circuit protection for the Drive Unit and motor. Incorrect motor branch circuit protection will void the warranty and may create a hazardous condition.

Proper grounding is vitally important to safe and successful operation. Bring your ground wire to the system subplate. You must choose the proper conductor size and minimize the resistance to ground by using the shortest possible routing. See National Electrical Code Article 250 or the applicable local electrical code.

Before applying power to the controller, physically check all the power resistors and other components located in the resistor cabinet and inside the controller. Components loosened during shipment may cause damage.

For proper operation of our controller, you must make sure that: 1) A direct solid ground is provided in the machine room to properly ground the controller and motor. Indirect grounds such as the building structure or a water pipe may not provide proper grounding and could act as an antenna to radiate RFI noise, thus disturbing sensitive equipment in the building. Improper grounding may also render any RFI filter ineffective. 2) The incoming power to the controller and the outgoing power wires to the motor are in their respective, separate, grounded conduits.

This equipment may contain voltages as high as 1000 volts. Use extreme caution. Do not touch any components, resistors, circuit boards, power devices, or electrical connections without ensuring that high voltage is not present.

## **Environmental Considerations**

- Keep the machine room clean.
- Controllers are generally in NEMA 1 enclosures.
- Do not install the controller in a dusty area.
- Do not install the controller in a carpeted area.
- Keep room temperature between 32 and 104° F (0 to 40° C).
- Prevent condensation on the equipment.
- Do not install the controller in a hazardous location or where excessive amounts of vapors or chemical fumes may be present.
- Make certain that power line fluctuations are within plus or minus 10% of proper value.

## **Air Conditioned Equipment Cabinets**

If your control or group enclosure is equipped with an air conditioning unit, it is very important to observe the following precautions. (Failure to do so can result in moisture damage to electrical components.)

- Maintain the integrity of the cabinet by using sealed knockouts and sealing any holes made during installation.
- Do not run the air conditioning while the cabinet doors are open.
- If you turn the air conditioner off while it is running, wait at least five minutes before restarting it. Otherwise, the compressor may be damaged.
- Observe the recommended thermostat setting (75 degrees) and follow recommended maintenance schedules.
- Make certain that the air conditioning drain tube remains clear to avoid water accumulation in the unit.

---

## In This Manual:

This is the installation, adjustment, and troubleshooting guide for the Element hydraulic controller. When viewed online as a pdf file, hyperlinks (buttons or blue text) link to related topics and informational websites. The manual includes:

- [Contents](#): Table of Contents. When viewed online as a pdf file, hyperlinks in the Contents link to the associated topic in the body of the manual.
- [Section 1](#). Installation
- [Section 2](#). Configuration and Troubleshooting
- [Section 3](#). Maintenance Plan Information
- [Index](#): Alphabetical index to help you find information in the manual. When viewed online as a pdf file, index entry page references are hyperlinks to the associated information in the body of the manual.

# Contents

|                                                           |             |
|-----------------------------------------------------------|-------------|
| <b>Important Precautions and Useful Information</b> ..... | <b>1-iv</b> |
| <b>Safety and Other Symbol Meanings</b> .....             | <b>1-iv</b> |
| <b>Safety Precautions</b> .....                           | <b>1-iv</b> |
| <b>Environmental Considerations</b> .....                 | <b>1-v</b>  |
| Air Conditioned Equipment Cabinets .....                  | 1-v         |
| <b>In This Manual:</b> .....                              | <b>1-vi</b> |

## Section 1. Installation

|                                    |             |
|------------------------------------|-------------|
| <b>Installation</b> .....          | <b>1-1</b>  |
| <b>Element Controls</b> .....      | <b>1-2</b>  |
| <b>Safety</b> .....                | <b>1-4</b>  |
| Personal Safety .....              | 1-4         |
| Equipment Safety .....             | 1-4         |
| <b>Specifications</b> .....        | <b>1-5</b>  |
| Operating Mode Definitions .....   | 1-7         |
| Non-Automatic Modes .....          | 1-7         |
| Cartop Inspection .....            | 1-7         |
| Car Panel Inspection .....         | 1-7         |
| Hoistway Access Inspection .....   | 1-7         |
| Machine Room Inspection .....      | 1-7         |
| Construction Operation .....       | 1-8         |
| Attended Modes .....               | 1-8         |
| Independent Service .....          | 1-8         |
| Fire Service Phase II .....        | 1-8         |
| Automatic Modes of Operation ..... | 1-8         |
| Passenger Mode .....               | 1-8         |
| Capture for Test (Pretest) .....   | 1-8         |
| Test Mode .....                    | 1-9         |
| Recall .....                       | 1-9         |
| Emergency Modes of Operation ..... | 1-9         |
| Fire Recall .....                  | 1-9         |
| Earthquake Operation .....         | 1-9         |
| Pit Flood Operation .....          | 1-9         |
| Emergency Power Operation .....    | 1-9         |
| Emergency Dispatch Operation ..... | 1-10        |
| <b>User Interface</b> .....        | <b>1-11</b> |
| Home Screen .....                  | 1-11        |
| Mode of Operation .....            | 1-12        |
| Faults and Safety .....            | 1-12        |
| System Status .....                | 1-12        |
| Menu Overview .....                | 1-13        |

|                                                  |             |
|--------------------------------------------------|-------------|
| <b>Component Identification</b>                  | <b>1-17</b> |
| <b>Installation</b>                              | <b>1-21</b> |
| Enclosure Installation                           | 1-21        |
| Grounding                                        | 1-21        |
| Check for Shorts to Ground                       | 1-21        |
| AC Power, Motor, Valves                          | 1-21        |
| Initial Power Check                              | 1-21        |
| Wire Separation                                  | 1-21        |
| <b>Construction Run: Machine Room</b>            | <b>1-22</b> |
| Settings & Jumpers                               | 1-22        |
| <b>Construction Run: Cartop</b>                  | <b>1-23</b> |
| <b>Verifying Proper Starter Operation</b>        | <b>1-23</b> |
| Solid State Starter                              | 1-23        |
| <b>Landing System Interface</b>                  | <b>1-24</b> |
| LS-EDGE-EL                                       | 1-24        |
| LS-QUTE 24                                       | 1-24        |
| Hoistway Limit Switches                          | 1-24        |
| <b>LS-EDGE Landing System</b>                    | <b>1-25</b> |
| <b>Tape Installation</b>                         | <b>1-26</b> |
| Top and Bottom Hangers                           | 1-26        |
| Broken Tape Switch                               | 1-28        |
| Tape Hanging                                     | 1-28        |
| Tape Tension                                     | 1-28        |
| <b>Sensor Installation</b>                       | <b>1-29</b> |
| Sensor Alignment                                 | 1-29        |
| <b>Door Zone Magnets</b>                         | <b>1-30</b> |
| <b>Terminal Magnets</b>                          | <b>1-31</b> |
| Element Terminal Magnet Logic                    | 1-32        |
| <b>Electrical Connection</b>                     | <b>1-34</b> |
| Hoistway Learn (Landing System Learn)            | 1-34        |
| Construction Learn                               | 1-35        |
| Element Hydro Adjustment                         | 1-35        |
| Initial Stepping Positions                       | 1-35        |
| USL1, DSL1                                       | 1-36        |
| USL2, DSL2                                       | 1-36        |
| UTL, DTL                                         | 1-36        |
| Landing System Troubleshooting Tools             | 1-36        |
| <b>LS-QUTE-24 Landing System</b>                 | <b>1-37</b> |
| Installing the Magnetic Strips on the Steel Tape | 1-38        |
| Power On Behavior with Absolute Floor Encoding   | 1-38        |
| <b>Serial Hall and Car Call Boards</b>           | <b>1-39</b> |
| Hall Calls                                       | 1-39        |
| General Installation                             | 1-39        |
| Addressing and CAN Bus Termination               | 1-40        |
| Riser Assignment                                 | 1-40        |
| Floor Number and Front or Rear Opening           | 1-40        |
| Baud Rate                                        | 1-40        |

|                                                              |             |
|--------------------------------------------------------------|-------------|
| CAN Bus Termination .....                                    | 1-40        |
| On Board Diagnostics .....                                   | 1-41        |
| ON LED .....                                                 | 1-41        |
| (FLT) FAULT LED .....                                        | 1-41        |
| Inventory .....                                              | 1-41        |
| <b>SC-3HN-2 Hall Calls .....</b>                             | <b>1-42</b> |
| General Installation .....                                   | 1-42        |
| Addressing and CAN Bus Termination .....                     | 1-43        |
| Riser Assignment .....                                       | 1-43        |
| Floor Number and Front or Rear Opening .....                 | 1-43        |
| Baud Switch .....                                            | 1-43        |
| CAN Bus Termination .....                                    | 1-43        |
| On Board Diagnostics .....                                   | 1-44        |
| ON LED .....                                                 | 1-44        |
| (FLT) FAULT LED .....                                        | 1-44        |
| Serial Car Call Board .....                                  | 1-45        |
| Installation Instructions .....                              | 1-45        |
| Lanterns and PIs .....                                       | 1-47        |
| Serial PI Configuration .....                                | 1-47        |
| <b>Door Operator .....</b>                                   | <b>1-48</b> |
| Door Position Monitor Switch .....                           | 1-48        |
| <b>Load Weigher .....</b>                                    | <b>1-48</b> |
| <b>Preparing the Car to Run on Test/Passenger Mode .....</b> | <b>1-49</b> |
| Test Mode Operation .....                                    | 1-49        |
| <b>Running on Test/Passenger Mode .....</b>                  | <b>1-50</b> |
| Final Adjustments on Test Mode .....                         | 1-50        |
| Hydraulic Valves .....                                       | 1-50        |
| Slowdown and Limit Switches .....                            | 1-50        |
| Relevel Operation .....                                      | 1-50        |
| <b>Final Adjustments on Independent Service .....</b>        | <b>1-50</b> |
| Motor/Valve Limit Timer .....                                | 1-51        |
| Door Operator Adjustments .....                              | 1-51        |
| Door Open/Close Protection .....                             | 1-51        |
| <b>Final Adjustments on Passenger Operation .....</b>        | <b>1-51</b> |
| Hall Calls .....                                             | 1-51        |
| Ride and Performance .....                                   | 1-52        |
| Recheck .....                                                | 1-52        |
| Options .....                                                | 1-52        |
| <b>Hydraulic Auxiliary Power Supply .....</b>                | <b>1-52</b> |
| <b>Duplex Operation .....</b>                                | <b>1-53</b> |
| Interconnect .....                                           | 1-53        |
| Power Phasing .....                                          | 1-53        |
| <b>Final Testing, LS-EDGE Only .....</b>                     | <b>1-54</b> |
| Bottom Terminal Slowdown Limit Tests .....                   | 1-54        |
| To test the Normal Stopping Means .....                      | 1-54        |
| To test the Terminal Speed Reducing Device .....             | 1-54        |
| To test the Normal Terminal Stopping Device .....            | 1-55        |
| Restore Original Settings .....                              | 1-55        |
| Top Terminal Slowdown Limit Tests .....                      | 1-55        |



|                                                   |             |
|---------------------------------------------------|-------------|
| To test the Normal Stopping Means .....           | 1-55        |
| To test the Terminal Speed Reducing Device .....  | 1-56        |
| To test the Normal Terminal Stopping Device ..... | 1-56        |
| Restore Original Settings .....                   | 1-56        |
| Stop Ring Test .....                              | 1-57        |
| Low Oil Condition Testing .....                   | 1-57        |
| Low Oil Switch in use. ....                       | 1-57        |
| No Low Oil Switch in use .....                    | 1-58        |
| <b>Passcode (Restricted Mode) .....</b>           | <b>1-58</b> |
| <b>Backup the Parameter Settings .....</b>        | <b>1-59</b> |

## Section 2. Configuration and Troubleshooting

|                                                      |             |
|------------------------------------------------------|-------------|
| <b>In this Section .....</b>                         | <b>2-1</b>  |
| <b>Using the Touch Screen .....</b>                  | <b>2-2</b>  |
| Home .....                                           | 2-2         |
| Shortcuts .....                                      | 2-4         |
| <b>Screen Descriptions .....</b>                     | <b>2-5</b>  |
| Earthquake Indicators .....                          | 2-24        |
| <b>Web Browser Access .....</b>                      | <b>2-25</b> |
| Web Setup .....                                      | 2-25        |
| Access .....                                         | 2-25        |
| <b>USB Parameter Transfer .....</b>                  | <b>2-25</b> |
| <b>Event Log Archive /Email .....</b>                | <b>2-26</b> |
| USB Archive .....                                    | 2-26        |
| Ethernet Archive .....                               | 2-26        |
| email .....                                          | 2-26        |
| <b>Troubleshooting Reference .....</b>               | <b>2-27</b> |
| Bus Voltage Testpoints and Fuse Locations .....      | 2-27        |
| Touch Screen Tools .....                             | 2-28        |
| System I/O .....                                     | 2-28        |
| System Diagnostics .....                             | 2-28        |
| SPA, SPB, SPC, PLD Diagnostics .....                 | 2-28        |
| SPA Diag .....                                       | 2-28        |
| SPB Diag .....                                       | 2-28        |
| SPC Diag .....                                       | 2-29        |
| PLD Diag .....                                       | 2-29        |
| Action Info .....                                    | 2-29        |
| Status Info .....                                    | 2-29        |
| Stats .....                                          | 2-29        |
| Scope .....                                          | 2-29        |
| Circuit Board Descriptions .....                     | 2-30        |
| SCE-CON Board .....                                  | 2-31        |
| MC-CPI-2 .....                                       | 2-33        |
| CPI-2 Configuration .....                            | 2-34        |
| Installation and Connections .....                   | 2-34        |
| SC-3HN or SC-3HN-2 Serial Hall Call Node Board ..... | 2-34        |
| SCE-CPU .....                                        | 2-35        |
| CPU Switches, Interface .....                        | 2-36        |

|                                            |             |
|--------------------------------------------|-------------|
| Updating System Software .....             | 2-38        |
| Replacing the SCE-CPU Board.....           | 2-39        |
| SCE-HVI .....                              | 2-42        |
| Door Operator Compatibility .....          | 2-44        |
| SCE-UPD .....                              | 2-45        |
| Solid State Starter .....                  | 2-47        |
| Event and Fault Message Descriptions ..... | 2-48        |
| <b>Event Log Viewing .....</b>             | <b>2-82</b> |
| Touch Screen Log Access .....              | 2-82        |
| Filtering .....                            | 2-82        |
| PC Log Access .....                        | 2-82        |

## Section 3. Maintenance Plan Information

|                                                      |             |
|------------------------------------------------------|-------------|
| <b>In this Section .....</b>                         | <b>3-1</b>  |
| <b>Maintenance Intervals .....</b>                   | <b>3-1</b>  |
| <b>Controller .....</b>                              | <b>3-2</b>  |
| Monthly .....                                        | 3-2         |
| Controller General .....                             | 3-2         |
| Air Conditioned Cabinets .....                       | 3-2         |
| Load Weighers .....                                  | 3-2         |
| MCE Isolated Platform .....                          | 3-2         |
| Lead/Acid Batteries .....                            | 3-2         |
| Car .....                                            | 3-2         |
| Every Six Months .....                               | 3-3         |
| Controller General .....                             | 3-3         |
| Air Conditioned Cabinets .....                       | 3-3         |
| Load Weighers .....                                  | 3-3         |
| Lead/Acid Batteries .....                            | 3-3         |
| Car .....                                            | 3-3         |
| Landing System .....                                 | 3-3         |
| Power Supplies .....                                 | 3-3         |
| Brake .....                                          | 3-3         |
| Yearly .....                                         | 3-4         |
| Controller General .....                             | 3-4         |
| Air Conditioned Cabinets .....                       | 3-4         |
| Load Weighers .....                                  | 3-4         |
| Lead/Acid Batteries .....                            | 3-4         |
| Board-mounted Batteries .....                        | 3-4         |
| Car .....                                            | 3-4         |
| Landing System .....                                 | 3-4         |
| Power Supplies .....                                 | 3-4         |
| Brake .....                                          | 3-4         |
| <b>SmarTraq Door Operator .....</b>                  | <b>3-5</b>  |
| Door Closing Force .....                             | 3-5         |
| <b>Hydraulic Auxiliary Power Supply .....</b>        | <b>3-10</b> |
| 8.6.4.19.7, 8.6.4.20.5 Maintenance and Testing ..... | 3-10        |
| Battery Maintenance .....                            | 3-10        |
| Battery Voltage No Load Test .....                   | 3-10        |

Battery Voltage Load Test..... 3-10

Battery Charger Circuit Test..... 3-10

Battery Replacement..... 3-11



## **Installation**

- Element Controls, [page 1-2](#)
- Safety, [page 1-4](#)
- Specifications, [page 1-5](#)
- Operating Mode Definitions, [page 1-7](#)
- User Interface, [page 1-11](#)
- Component Identification, [page 1-17](#)
- Installation, [page 1-21](#)
- Construction Run Requirements, [page 1-22](#)
- Landing System Interface, [page 1-24](#)
- LS-EDGE Landing System, [page 1-25](#)
- LS-QUTE 24V Landing System, [page 1-37](#)
- Serial Hall and Car Call Boards, [page 1-39](#)
- Door Operator, [page 1-48](#)
- Load Weigher, [page 1-48](#)
- Hoistway Limit Switches, [page 1-24](#)
- Test/Passenger Mode, [page 1-50](#)
- Independent Mode, [page 1-50](#)
- Passenger Operation, [page 1-51](#)
- Hydraulic Auxiliary Power Supply (HAPS), [page 1-52](#)
- Duplex Operation, [page 1-53](#)
- Final Testing, [page 1-54](#)
- Passcode, [page 1-58](#)



## Element Controls

Element elevator controls are available for hydraulic or traction applications.

- **Hydraulic Applications**

- Up to 6 floors
- Single, in-line openings
- Solid state starters, single piston, unroped
- Maxton valve style or equivalent (120 VAC, 4 coils)
- Up to 150 FPM
- Simplex or Duplex operation
- One car operating panel per car (two if wired in parallel)
- One hall riser
- MCE LS-EDGE landing system, or
- MCE LS-QUTE 24 landing system

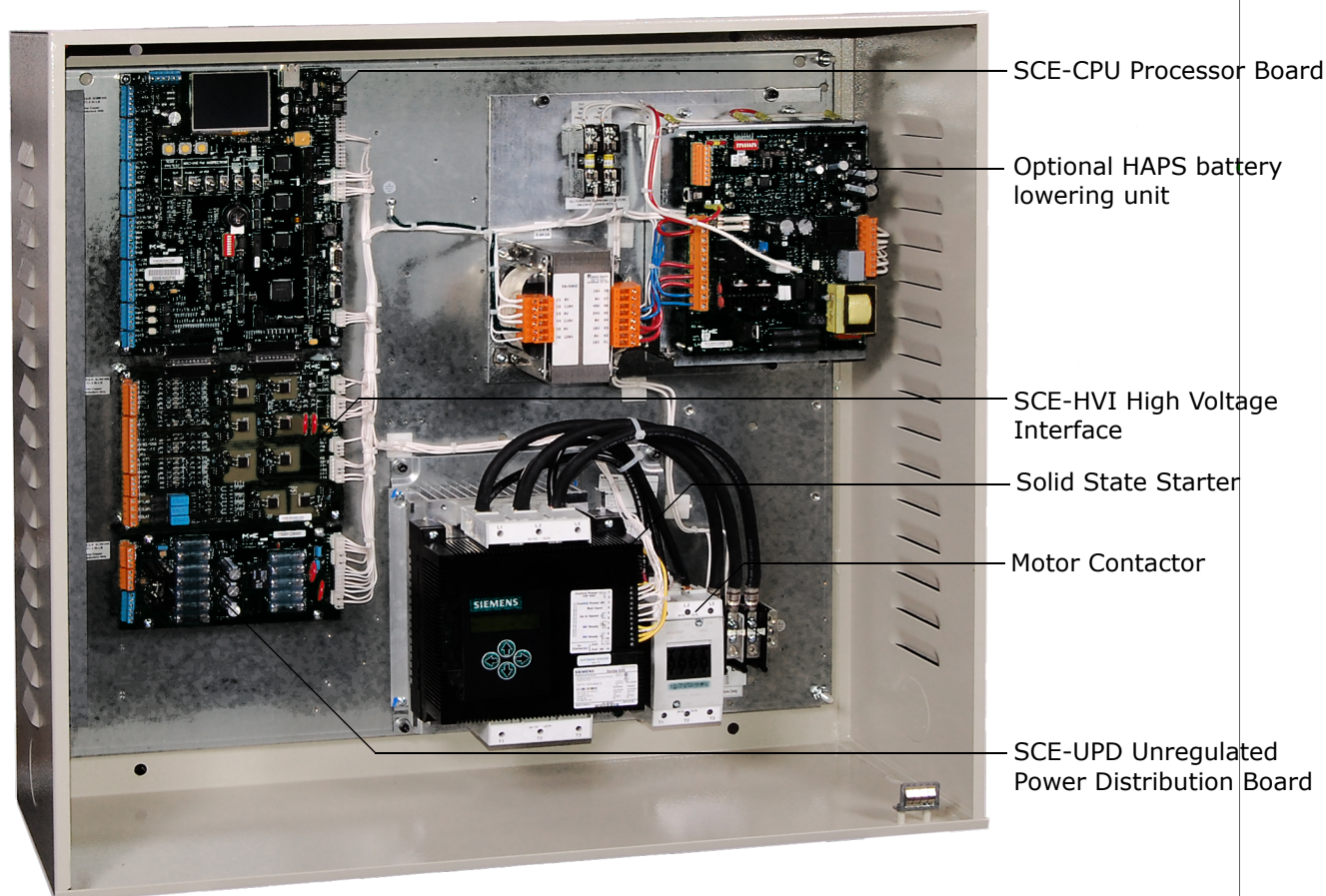
- **User Interface**

- On-board, touch screen configuration
- Web browser access
- USB thumb drive for software update, parameter transfer, or event log download
- Micro SD card event storage

- **Supported Door Operators**

- MCE Universal Door Control (Interface)
- MCE SmarTraq
- MCE Profile
- ECI 895
- ECI 1000
- ECI 2000
- ECI VFE 2500
- GAL MOVFR
- GAL MOD (220V only)
- GAL MODHFL
- GAL MONXT
- GAL MOVFR (220V only)
- GAL MOVFE 2500 (220V only)
- MAC PMSSC
- OTIS AT400
- TKE/DOVER HDLM

**Figure 1.1 Element Hydraulic Control**



#### Circuit Boards

##### SCE-CPU:

3.5-inch color touch screen  
Capture/Test controls  
Machine Room Inspection  
Car/Hoistway Door Bypass  
EQ reset  
UIM reset  
FAULT reset  
Starter control  
Elevator logic

##### SCE-HVI:

Normal slowdowns  
Terminal switches  
Safety string  
Motor contactor  
Door locks  
Door control

##### SCE-UPD:

Bus fusing  
Power distribution  
Touch safe design

Standard enclosure: 31.5" H x 34" W x 11" D.  
Floor mounting requires an optional floor kit and will add 18" to the height.

Power Input: 208 - 480 VAC, 50/60 Hz, 3 Phase



## Installation

## Safety

Certain fundamental warnings must be kept in mind at all times to help avoid accidental death, severe personal injury, or equipment damage.

### Personal Safety

- Controllers may only be installed by qualified, licensed, trained elevator personnel familiar with the operation of microprocessor-based elevator controls.
- Verify safety devices (limits, hoistway locks, car gate, etc.) are fully functional before running the elevator. Never operate controls with any safety device inoperative.
- The user is responsible for complying with the current National Electrical Code with respect to the overall installation of equipment and proper sizing of electrical conductors.
- The user is responsible for understanding and applying all current local, state, provincial, and federal codes that govern practices such as controller placement, applicability, wiring protection, disconnections, over-current protection, and grounding procedures.
- Controller equipment is at line voltage when AC power is connected. Never operate controls with cover removed from solid state drive.
- After AC power has been removed, internal capacitors can remain charged for up to 5 minutes. Wait at least 5 minutes after power down and check for live circuits before touching any internal components.
- To reduce the risk of shock, all equipment should be securely grounded to earth ground. Failure to obtain an actual earth ground may result in electrical shock to personnel.
- Provide equipment grounding in accordance with local code and NEC Article 250.
- When using test equipment (oscilloscopes, etc.) with a power cord that electrically ties probe common to earth ground, an isolation transformer should be used to isolate the instrument common from earth ground.
- Remain clear of all rotating equipment while working on the controls.

### Equipment Safety

- Provide equipment grounding in accordance with local code and NEC Article 250. Failure to obtain a true earth ground may result in electrical shock. Improper grounding is the most common cause of electrical component failure and noise-induced problems.
- Replace components only with main line power off. Damage to equipment or unexpected operation of the elevator may occur if this precaution is not observed.
- Do not substitute or modify parts. MCE will not be responsible for modifications made in the field unless they are approved in writing by MCE.
- Circuit boards believed to be defective must be sent to MCE for repair and testing. Field repair may leave the board with undetected problems.
- Care should be taken when using test leads and jumpers to avoid shorting high voltage or ground to low voltage microprocessor circuits.
- Do not allow dust, carbon, or metallic particles to accumulate on any part of the control.
- Avoid vibration, shock, high humidity, high ambient temperature, and caustic fumes.

## Specifications

This section lists specification and feature set information for hydraulic installations.

- Environmental and Power Input
- Standardization and Code Compliance
- Operating Modes
- Operating Mode Definitions

**Table 1.1 Environmental and Power Input**

| Topic       | Description                                                    |
|-------------|----------------------------------------------------------------|
| Enclosures  | NEMA 1 standard, others available                              |
| Temperature | 32 to 104° F, 0 to 40° C                                       |
| Humidity    | To 95% non-condensing                                          |
| Altitude    | To 10,000 feet (3000 meters) starter derating per manufacturer |
| Power Input | Power Input: 208 - 480 VAC, 50/60 Hz, 3 phase                  |

**Table 1.2 Standardization and Code Compliance**

| Topic                     | Description                                                                                                                                                                                                                                                                                                                          |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety Codes (Fire Codes) | <ul style="list-style-type: none"> <li>- ASME A17.1/CSA B44 2016</li> <li>- ASME A17.1/CSA B44 (2007 to 2013)</li> <li>- ASME A17.1a/CSA B44S1 2005</li> <li>- ASME A17.1/CSA B44 2004</li> <li>- ASME A17.1/CSA B44 2000 W/Add</li> <li>- ASME A17.1-1996 with addenda</li> <li>- Massachusetts</li> <li>- New York City</li> </ul> |
| Special Needs             | 2010 ADA Standards                                                                                                                                                                                                                                                                                                                   |
| Electrical                | NEC, U.S., CSA B44.1/ASME A17.5                                                                                                                                                                                                                                                                                                      |
| Pollution                 | UL508C                                                                                                                                                                                                                                                                                                                               |
| Emissions                 | EN12016                                                                                                                                                                                                                                                                                                                              |

**Table 1.3 Operating Modes**

| Topic                | Description                                                                                                                                                         |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Simplex              | Single car, integrated dispatching                                                                                                                                  |
| Duplex               | Two cars, both with integrated dispatching capability but with one car assuming dispatching control for both                                                        |
| Call Response        | Selective Collective automatic service                                                                                                                              |
| Automatic Operation  | Passenger/normal<br>Test (contract speed operation without door opening)<br>Pretest (no hall call response, car recalls to capture floor after servicing car calls) |
| Attended Operation   | Independent service<br>In-car fire service (Fire Phase 2)                                                                                                           |
| Inspection Operation | Cartop inspection<br>Car panel inspection<br>Hoistway access inspection<br>Machine room inspection                                                                  |



## Installation

**Table 1.3 Operating Modes**

| Topic                                         | Description                                                                                                                                                                                         |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Construction Fault Bypass                     | Faults bypassed operation using run box or inspection controls. See Faults Bypass note.                                                                                                             |
| Inspection Fault Bypass                       | Faults bypassed operation using inspection controls. See Faults Bypass note.                                                                                                                        |
| Automatic Fault Bypass                        | Faults bypassed operation in Automatic mode. See Faults Bypass note.                                                                                                                                |
| Emergency Operation                           | Fire service (ASME A17.1/CSA B44)<br>NYC Appendix K<br>Massachusetts (2004)<br>EN81-72 (2003)<br>Australia (1986, requires START input)<br>New Zealand (1997, requires START input)                 |
| Earthquake Operation                          | ASME A17.1/CSA B44<br>Seismic detection                                                                                                                                                             |
| Hall Call Loss<br>(Emergency Dispatch)        | See <a href="#">Emergency Dispatch Operation on page 1-10</a> . May be initiated by input if programmed.                                                                                            |
| Flood                                         | Pit Flood (access blocking to one or more lower floors only)                                                                                                                                        |
| Emergency Power                               | MCE HAPS battery lowering optional, building generator I/O standard                                                                                                                                 |
| Load Response<br>(discrete load weigher only) | Light load<br>Heavy load/Lobby departure<br>Standard overload<br>Fire Phase 2 overload (ANSI A17.1/CSA B44)                                                                                         |
| Anti-Nuisance                                 | Car call cancel on direction reversal<br>Cancel car calls behind car<br>Photo eye/designated number of stops car call cancellation<br>Load weigher/designated number of stops car call cancellation |
| Oil pressure, oil viscosity, thermal overload | Condition must be corrected before car can return to service.                                                                                                                                       |

### Note

**FAULTS BYPASS:** See [Touch Screen Event Listings on page 2-48](#). Each fault or event lists which fault bypass operating modes will prevent that fault. Construction blocks the greatest number of faults, Inspection next, then Automatic. Automatic mode fault bypass is on a two hour timer.

## Operating Mode Definitions

This section describes non-automatic modes, attendant modes, automatic modes, and emergency modes of operation.

### Non-Automatic Modes

Non-automatic modes include:

- Cartop Inspection, [page 1-7](#)
- Car Panel Inspection, [page 1-7](#)
- Hoistway Access Inspection, [page 1-7](#)
- Machine Room Inspection, [page 1-7](#)
- Construction Mode, [page 1-8](#)

In any of these modes, the car is manually operated and will not respond to building demand of any type. Position indicators and passenger annunciators will be disabled. If fire service is activated during a non-automatic mode, audible and visible annunciators will activate to alert the elevator technician but the car will not automatically exit the non-automatic mode.

**Cartop Inspection** Cartop Inspection has the highest priority of the inspection modes. When it is active, the car will not operate from any other inspection station.

A switch located in the cartop inspection station places the car on cartop inspection. When this switch is activated, automatic car and door operation are immediately terminated. Doors in transit when cartop inspection is activated will immediately stop. Additional constant-pressure switches on the cartop allow the car to be moved at inspection speed (not to exceed 150 fpm).

**Car Panel Inspection** Car panel Inspection has the second highest priority of the inspection modes. When it is active, the car will not operate in Hoistway Access or Machine Room inspection.

A switch located in the car operating panel places the car on car panel inspection. When this switch is activated, automatic operation is immediately terminated. Doors in transit when car panel inspection is activated will immediately stop. While on car panel inspection, door operation requires constant-pressure operation of door open/close buttons. Additional constant-pressure switches allow the car to be moved at inspection speed (not to exceed 150 fpm).

**Hoistway Access Inspection** At both top and bottom access hall stations, a three-position, key operated switch allows the car to be moved to gain top or bottom access. The car will move with car and hall doors open at the affected landing. If doors are in transit when hoistway access is initiated, they will stop immediately.

**Machine Room Inspection** Machine room inspection has the lowest priority of the inspection modes.

A switch located in the elevator controller cabinet places the car on machine room inspection. When this switch is activated, automatic car and hall door operation are immediately terminated. Doors in transit when inspection is activated will immediately stop. Additional constant-pressure switches allow the car to be moved at inspection speed (not to exceed 150 fpm).

## Installation

**Construction Operation** Construction operation is for use when all hoistway equipment may not yet be installed. On Construction operation, the car is moved using cartop or machine room inspection inputs. To enter construction operation:

- The INSP/NORM switch on the CPU board must be in INSP position.
- The FLT BYPASS jumper just below the CPU board MACHINE RM INSPECTION switches must be in the BYPASS position.
- On the Utils (Utilities) tab > Construct and Bypass Faults Menu, enable Construction Fault Bypass.

To bypass door faults on Construction operation:

- Set the SCE-CPU board Car and Hoistway Door Bypass switches to BYPASS.

## Attended Modes

Attended modes include Independent operation and fire service phase II operation.

**Independent Service** When independent service is initiated, all existing car calls are immediately canceled and the elevator is removed from hall call service. With the car stopped in a door zone, if car doors are open, they will remain open; if closed, they will remain closed. During independent service the car is controlled by car calls placed while independent service is active.

Upon arriving at a call, the elevator doors open and will remain open until the attendant closes the doors using constant pressure on the door close button or on a car call button. Hall and jamb mounted arrival fixtures are inoperative.

**Fire Service Phase II** When the car is placed on fire service phase II (in-car fire-fighter) operation, the elevator will operate according to the applicable local fire code. For example, A17.1 code:

- Constant pressure on the door close button initiates door closing.
- Registration of a destination call and pressing door close button initiates door closing.
- When exiting Fire Phase II and the car arrives at the fire recall floor, doors open automatically.

## Automatic Modes of Operation

Automatic modes include passenger mode, capture for test (pretest), and test modes.

**Passenger Mode** During passenger mode, the car responds to hall and car calls under selective-collective operation. Passenger mode is the default mode of operation and is active so long as no other mode is selected.

**Capture for Test (Pretest)** When placed in Pretest mode, the car is taken out of hall call service and arrival annunciators disabled. Remaining car calls will be served and new car calls may be placed but, when the car completes servicing car calls, it will recall to the designated Capture floor or remain at the last floor served; door action as programmed.

Capture operation is overridden by all modes except passenger operation.

**Test Mode** It is the responsibility of maintenance personnel to be certain that the elevator is empty before entering test mode. In test mode, the elevator doors will remain closed. The car runs at contract speed, responding to car calls placed through the controller touch screen.

**Recall** Four general purpose recall inputs are provided. Each is independently configurable. See [Recall Switches on page 2-12](#).

## Emergency Modes of Operation

Emergency modes of operation include:

- Fire Recall, [page 1-9](#)
- Earthquake Operation, [page 1-9](#)
- Pit Flood Operation, [page 1-9](#)
- Emergency Power Operation, [page 1-9](#)
- Emergency Dispatch Operation, [page 1-10](#)

**Fire Recall** Fire recall operation (Fire Phase I) recalls the elevator to a designated fire recall floor (main or alternate) and removes it from passenger operation. Fire recall can be initiated by smoke detectors or by a fire recall switch. To disable fire service, confirm spare input FR1 ON and spare outputs FR1 BUZR and FR HAT are not configured.

At the recall floor, the car will wait with doors closed or open (as configured). The car may enter fire phase II operation automatically or by activation of a key switch inside the car.

**Earthquake Operation** Earthquake operation affects all automatic modes of operation. When a seismic input becomes active, the car will immediately stop and determine if it is appropriate to allow the elevator to move at reduced speed in accordance with the earthquake restrictions of the jurisdiction.

**Pit Flood Operation** If a flooded pit is detected and pit flood is activated, the car will be prevented from servicing one or more lower floors (depending on job site configuration of the controller).

**Emergency Power Operation** Emergency power operation, if provided, is activated when normal power loss is detected. Emergency power may be provided by a building generator or by a battery powered lowering device.

If power is provided by a generator, the car will pause until generator power is stable and then recall to a designated floor and open its doors for passenger exit. If the generator has sufficient power, one or more cars may be configured to run on emergency power.

If power is provided by a lowering device, the car will pause until battery power is stable and then lower to the bottom floor and open its doors. After passengers have exited, the car will close its doors and shut down. See the MCE Hydraulic Auxiliary Power Supply manual, 42-02-U002 for details.

## Installation

**Emergency Dispatch Operation** If a communications failure prevents hall calls from being registered, the car will enter emergency dispatch operation. In this mode, car calls at unsecured eligible floors are automatically registered starting at the current PI and current direction (or up direction if the car was idle). The car starts at the top floor, then serves every floor in the down direction. The lobby and terminal floors (or lowest/highest unsecured eligible floor) are served in both directions. A full cycle is when the car is at the lowest unsecured eligible floor and every unsecured eligible floor has been served at least once via automatically registered car calls (not including COP car calls). The emergency dispatch operation is paused when the car has completed the number of user defined cycles. At that time, the emergency dispatch hold timer starts and the emergency dispatch operation restarts when the timer elapses. The timer is reset if the car starts to move to park or answer COP car calls. This operation allows the elevator to continue service to the building in the absence of normal hall call registration. When the hall calls are gain able to communicate, the elevator will resume normal passenger operation.

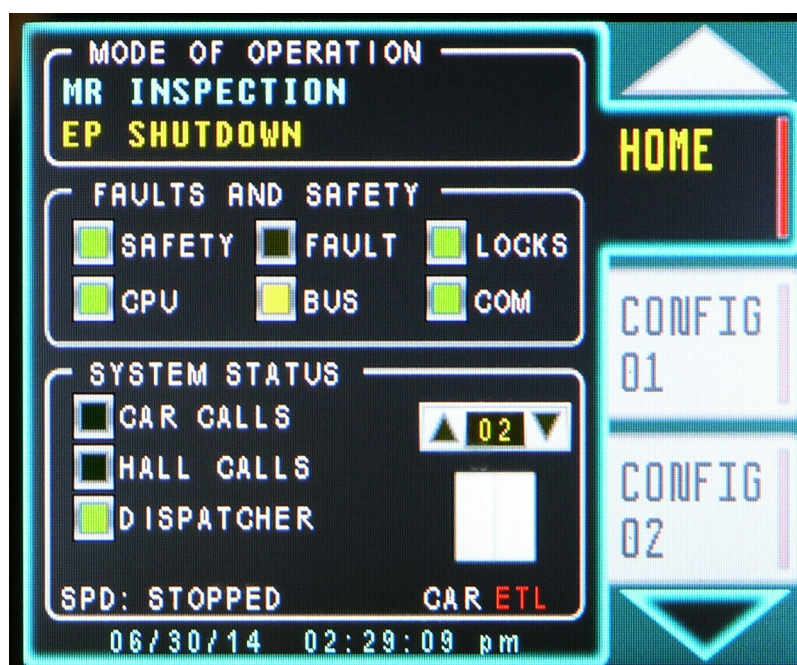
## User Interface

System status display, configuration, and diagnostics are through the on-board, color, touch-screen (OBD, On Board Display). <sup>1</sup>No external programming tools are required. You must be on Inspection mode to change and save parameters. The interface provides:

- Home, [page 1-11](#)
- Config 01, 02, and 03 [page 1-13](#)
- Utils, [page 1-14](#)
- System IO, [page 1-14](#)
- System Diag, [page 1-14](#)
- SPA Diag, [page 1-14](#)
- SPB Diag, [page 1-15](#)
- SPC Diag, [page 1-15](#)
- PLD Diag, [page 1-15](#)
- Action Info, [page 1-15](#)
- Status Info, [page 1-15](#)
- Stats, [page 1-16](#)
- Scope, [page 1-16](#)

## Home Screen

Figure 1.2 Home Screen



**Note**

For detailed parameter descriptions, see [Screen Descriptions on page 2-5](#).

1. Web browser access is supported. Parameters may be transferred from controller to controller using a USB drive.

## Installation

### Mode of Operation

This screen section lets you know immediately what mode of operation the elevator is currently using. Typically, this will be Passenger (normal automatic) mode but it may be any of several different modes. In our example illustration, the car is on MR (machine room) INSPECTION operation. Please see Operating Modes on [page 1-7](#).

The second line of the display shows any events or faults that may be active in yellow text. Usually, this line will be blank. In our example illustration, EP SHUTDOWN indicates that the car has been shut down on emergency power.

### Faults and Safety

These “LED” indicators provide immediate information about factors affecting elevator operation.

- SAFETY:
  - Green = Safety string OK.
  - Red = Safety string open.
- FAULT:
  - Blank = No Faults
  - Yellow = One or more self-resetting faults are active.
  - Flash Yellow = One (or more) latching faults (requiring fault reset) are active.
- LOCKS:
  - Green = Door lock string is made up.
  - Blank = Door lock string is open.
- CPU:
  - Green = All CPUs (SPA, SPB, SPC, PLD, LS-EDGE-EL) are online and communicating.
  - Red = One (or more) CPU(s) is/are offline or not communicating.
- BUS:
  - Green = All buses (2LS, 3HN, M2MV ...) hardware status okay.
  - Red = One (or more) bus(es) is/are not detected.
  - Yellow = One (or more) buses is/are not detected due to normal operation (ie, the 2LS bus is temporarily interrupted when the doors are open).
- COM:
  - Green = All CPUs are communicating with all buses (3HN, CAN, COP, ...).
  - Red = One (or more) CPUs not communicating with one or more buses.

### System Status

This section tells you how the system is operating right now.

- CAR CALLS:
  - Green = Car is in service for car calls.
  - Blank = Car is not in service for car calls.
- HALL CALLS:
  - Green = Car is in service for hall calls.
  - Blank = Car is not in service for hall calls.



- DISPATCHER/DISP ID: nn
  - Dispatcher - indicates the car is assigning its own hall calls or, if in a Duplex installation, is assigning hall calls for itself and for the second car of the Duplex.
  - Disp ID: nn - indicates that this car is accepting hall call assignments from the other car in a Duplex installation.
  - Simplex: Single, self-dispatching car.

Additional information provided in this screen section includes:

**Table 1.4 General Status Information**

| Topic                | Description                                                              |
|----------------------|--------------------------------------------------------------------------|
| Intended Direction   | Intended direction of travel (preferred direction)                       |
| Actual Direction     | Actual direction of travel (direction command activated)                 |
| Position             | Logical position, user defined floor label                               |
| Destination          | Next destination, user defined floor label                               |
| Door Status          | Door state display (closed, opening, open, closing, stalled)             |
| Door Lock Status     | Door locks/Car safety string                                             |
| Car Speed            | Commanded car speed (traction only)                                      |
| Car Label            | Label assigned to this car (A in our example)                            |
| Car motion animation | Arrows scroll rapidly if fast valve enabled; slow if slow valve enabled. |
| Date and Time        | mm/dd/yy and 00.00.00 am/pm                                              |

## Menu Overview

**Table 1.5 Config 01, 02, and 03**

| Topic                     | Description                                                                              |
|---------------------------|------------------------------------------------------------------------------------------|
| <b>Config 01</b>          |                                                                                          |
| Building Setup            | Controller type, floor information, Safety code, recall floors, and landing system type. |
| Job Info and Labels       | Job information, car and floor labels                                                    |
| Elevator Features         | Capture and recall floors, car behavior, antinuisance                                    |
| Configure Spare Inputs    | Configure spare inputs.                                                                  |
| Configure Spare Outputs   | Configure spare outputs.                                                                 |
| System Timers             | Motor delays, door timers, car delay timers                                              |
| <b>Config 02</b>          |                                                                                          |
| Hoistway Setup            | LS-EDGE landing system only.                                                             |
| NTS2 Switches             | NA for hydraulic elevators                                                               |
| ETS Switches              | NA for hydraulic elevators                                                               |
| S-Curve                   | NA for hydraulic elevators                                                               |
| NTS1 Switches             | NA for hydraulic elevators                                                               |
| System Control Parameters | Car speed, valve, and starter settings                                                   |
| <b>Config 03</b>          |                                                                                          |
| Building Security         | Security settings                                                                        |
| Emergency Power           | Power type, recall and run selections                                                    |
| Recall Switches           | Recall switch settings                                                                   |
| Network Settings          | IP address information                                                                   |
| Earthquake Operation      | Earthquake operating selections                                                          |
| Quick Setup               | Reserved                                                                                 |



## Installation

**Table 1.6 Utilities**

| Topic                       | Description                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| File Transfer               | Allows you to selectively transfer controller parameters:<br><ul style="list-style-type: none"> <li>- Backup Current Settings</li> <li>- Restore Backup Settings</li> <li>- Restore Factory Settings</li> <li>- Export Events to USB Drive</li> <li>- Export Current Settings to USB Drive</li> <li>- Import &amp; Apply Settings from USB Drive</li> </ul> |
| Register Calls              | Car and hall call registration                                                                                                                                                                                                                                                                                                                              |
| Construct and Bypass Faults | Enable Construction mode/fault bypass. Set fault bypass for Inspection and Automatic modes.                                                                                                                                                                                                                                                                 |
| Safety Tests                | Commissioning tests                                                                                                                                                                                                                                                                                                                                         |
| Date and Time               | Set date and time                                                                                                                                                                                                                                                                                                                                           |
| Landing System Utilities    | Hoistway learn and landing system leveling data.                                                                                                                                                                                                                                                                                                            |

**Table 1.7 System IO**

| Topic              | Description                   |
|--------------------|-------------------------------|
| System Inputs      | View system input status      |
| System Outputs     | View system output status     |
| Programmed Inputs  | View programmed input status  |
| Programmed Outputs | View programmed output status |
| Main CPI (0) IO's  | View main CPI board IO status |
| Aux CPI (2) IO's   | View aux CPI board IO status  |

**Table 1.8 System Diagnostics**

| Topic            | Description                                  |
|------------------|----------------------------------------------|
| Motion IO        | Valve enable, starter I/O, hoistway switches |
| Event Log        | First In/First Out logging of system events  |
| Door Control     | View door control signal status              |
| Diagnostics Tree | Safety related signal activity flags         |
| Landing System   | View landing system signal status            |
| Active Events    | View currently active system events          |

**Table 1.9 SPA Diagnostics**

| Topic                  | Description                                                   |
|------------------------|---------------------------------------------------------------|
| SPA Flags              | Registers and active flags                                    |
| SPA Numeric            | Register data pertaining to general I/O                       |
| SPA Motion Numeric     | Register data pertaining to car movement                      |
| Emerg Pwr & Earthquake | View emergency power and earthquake related flags.            |
| Door Dwell Times       | Conditions affecting door dwell time with activity indicators |
| Itinerary manager      | Conditions affecting car travel with activity indicators      |

**Table 1.10 SPB Diagnostics**

| Topic       | Description                |
|-------------|----------------------------|
| SPB Flags   | Registers and active flags |
| SPB Numeric | Register data              |
| SPB Inputs  | SPB input flags            |
| SPB Outputs | SPB output flags           |

**Table 1.11 SPC Diagnostics**

| Topic             | Description                  |
|-------------------|------------------------------|
| SPC Flags         | Registers and active flags   |
| SPC Numeric       | Register data                |
| SPC Inputs        | SPC input flags              |
| SPC Outputs       | SPC output flags             |
| Group to Car Data | Group to car data monitoring |
| Car to Group Data | Car to group data monitoring |

**Table 1.12 PLD Diagnostics**

| Topic       | Description                              |
|-------------|------------------------------------------|
| PLD Flags   | Flags for PLD related system operations. |
| PLD Numeric | PLD register data                        |
| PLD Inputs  | Activity on inputs related to the PLD.   |
| PLD Outputs | Activity on outputs related to the PLD.  |

**Table 1.13 Action Information**

| Topic                      | Description                                                |
|----------------------------|------------------------------------------------------------|
| Car call cancelled due to  | Cancellation conditions with activity indicators           |
| Hall call cancelled due to | Cancellation conditions with activity indicators           |
| Door open due to           | Conditions affecting door opening with activity indicators |
| Door close due to          | Conditions affecting door closing with activity indicators |
| Prohibit run/start due to  | Conditions affecting car starting and running              |

**Table 1.14 Status Information**

| Topic                  | Description                                                                                         |
|------------------------|-----------------------------------------------------------------------------------------------------|
| CPU Bus communications | Conditions affecting microprocessor communication with activity indicator                           |
| Hall Bus Inventory     | Inventory and test hall call nodes and indicators                                                   |
| Can Bus Viewer         | View CAN bus device IDs and related messaging activity.                                             |
| Version Information    | Software version information                                                                        |
| Other Car Settings     | Second car settings display for duplex operation                                                    |
| Address Diagnostics    | Access selected processor register contents via address entry. Technician assisted troubleshooting. |

## Installation

**Table 1.15 Statistics**

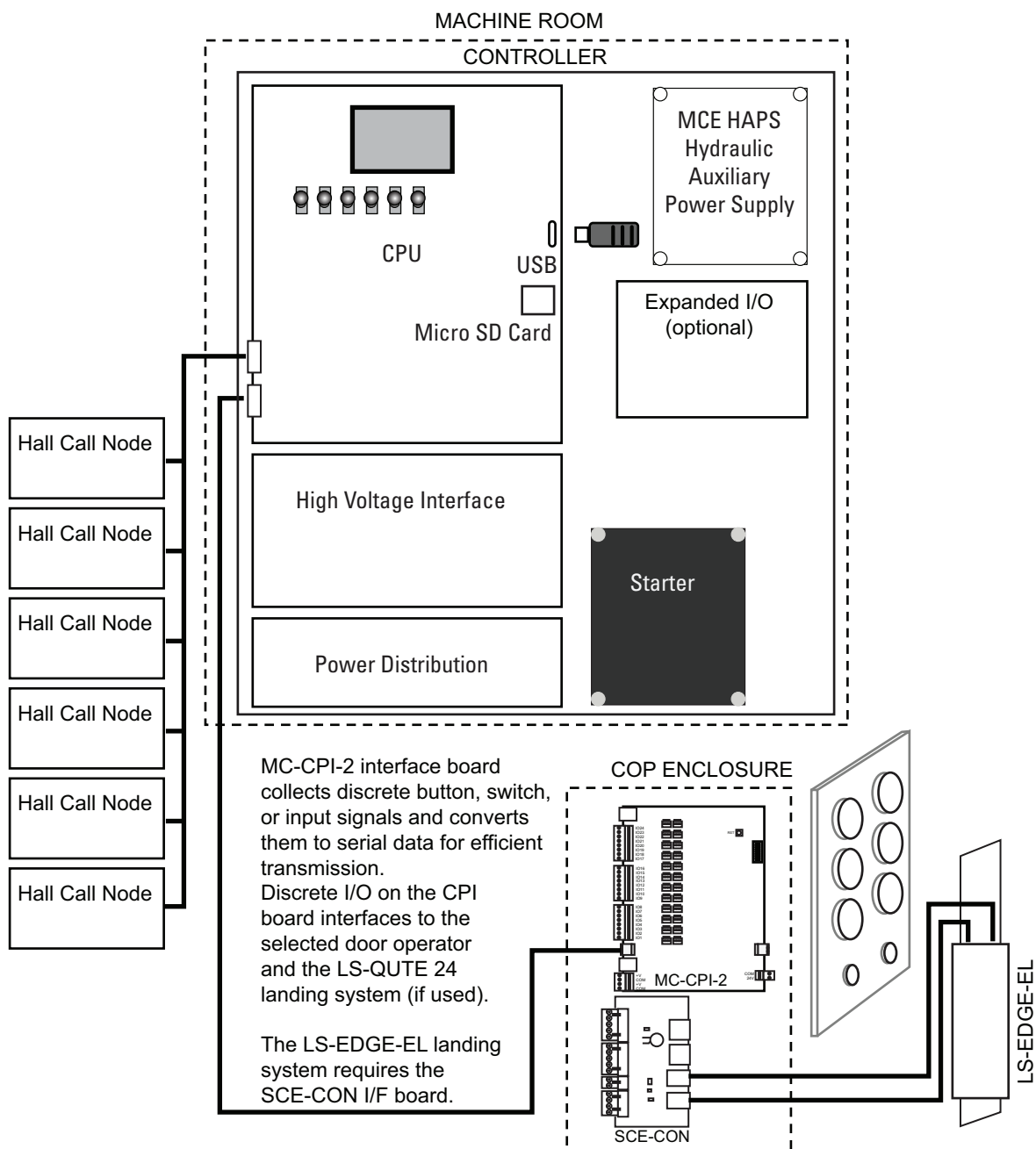
| Topic                  | Description                                             |
|------------------------|---------------------------------------------------------|
| Maintenance Statistics | Statistics pertinent to system maintenance              |
| Hourly Statistics      | Statistics for the last 24 hours of operation, per hour |

**Table 1.16 Scope**

| Topic              | Description                                                   |
|--------------------|---------------------------------------------------------------|
| View Scope         | Select and track four system signals in near real time, from: |
| Landing System     | Switches, slowdowns, door zones                               |
| System Inputs      | Dedicated inputs                                              |
| Programmed Inputs  | Assignable inputs                                             |
| System Outputs     | Dedicated outputs                                             |
| Programmed Outputs | Assignable outputs                                            |

## Component Identification

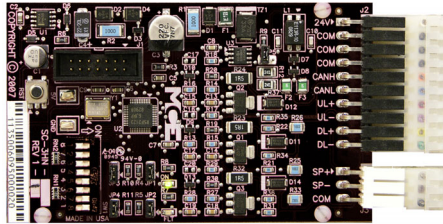
Figure 1.3 System Architecture



## Installation

Typical system components:

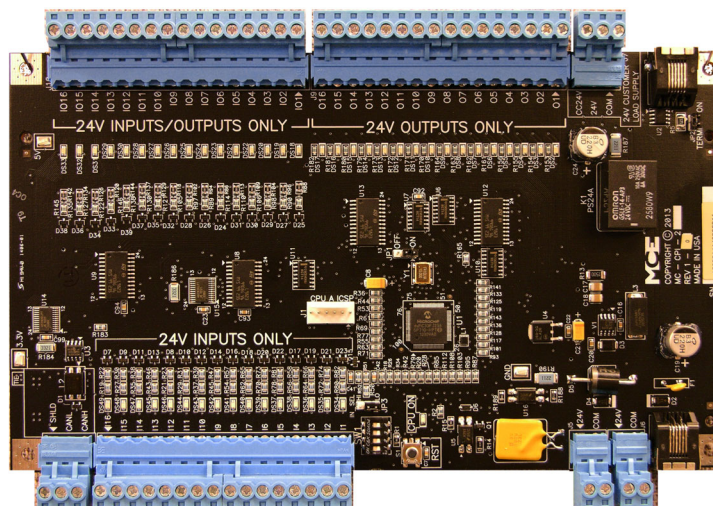
- Elevator Controller and standard circuit boards (including solid state starter)
- Landing System -
  - LS-QUTE 24, LS-EDGE-EL, or LS-RAIL for hydraulic units ([page 1-37](#))
  - SC-3HN serial hall call node boards (one in each hall fixture; one for each additional required riser input)



- SC-3HN-2

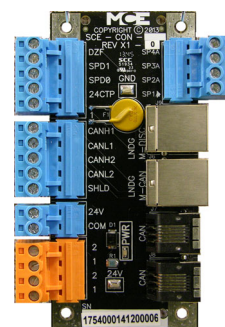


- MC-CPI-2
  - The MC-CPI-2 board serializes COP button and switch information and also interfaces to the LS-QUTE 24 landing system. This board mounts in the car operating panel. The CPI-2 board is also used in the controller cabinet to support additional system I/O.



- SCE-CON interface board

- Provides a system CAN to LS-EDGE-EL landing system interface. The LS-EDGE-EL landing system allows all hoistway switches to exist virtually in software. This vastly reduces hoistway installation, position, and wiring time. This board is usually mounted in the COP with the MC-CPI-2 board but may be mounted in a car top box as well.



## Installation

SCE-CPU board switches:



- Test/Pretest:
  - Pretest captures the car by disabling hall calls, serving only car calls, and remaining at the selected recall floor or last floor served (door operation as set).
  - Test allows the car to be operated at contract speed with doors and hall calls disabled.
  - The switch center position disables Test/Pretest operation.
- Machine Rm Inspection Insp/Normal:
  - Inspection: Places the car on Machine Room Inspection operation.
  - Normal: Places the car on Passenger (automatic) operation.
- Machine Room Enable and Up/Down:
  - To move the car on Inspection operation, the Enable switch must be held in the Enable position and the Up/Down button must be held in the desired direction. When Enable or the direction switch is released, the car will stop.
- Car Door/Hoistway Door Bypass switches:
  - Used to bypass the car or hoistway door electric contacts (Bypass position). When set to Bypass, the car will run only on Inspection mode.

SCE-CPU Board Reset controls:



- EQ RST: Use to reset the earthquake input and restore normal operation.
- UIM RST: Use to reset the emergency brake following an unintended motion incident.
- FAULT: Use to reset controller faults.
- RSTP: Use to reset the PLD.
- RSTA: Use to reset processor A.
- RSTB: Use to reset processor B.
- RSTC: Use to reset processor C.



## Installation

The job prints provide the information required to wire and set up the controller. This section provides information in support of the prints.

### Enclosure Installation

Secure the controller enclosure on a wall or tank or use the optional floor mounting kit as required. Use provided wiring knock-outs to install raceway or conduit to route wires into the cabinet. If you drill or cut the cabinet, do not allow metal chips or shavings to fall into electronics. **Damage caused by this is not covered by warranty.**

### Grounding

A professional electrician-certified, NEC 250, earth ground is imperative. Most electrical noise and/or intermittent continuity problems result from poor grounding.

### Check for Shorts to Ground

With no power applied to the controller:

1. Note, then unplug the five input-end connectors from the SCE-UPD board. See illustration to right.
2. Measure resistance from either side of each fuse on the board to ground.
3. If there are any shorts to ground, troubleshoot related connections to find and correct the short.
4. Reconnect the input connectors to the SCE-UPD board.

### AC Power, Motor, Valves

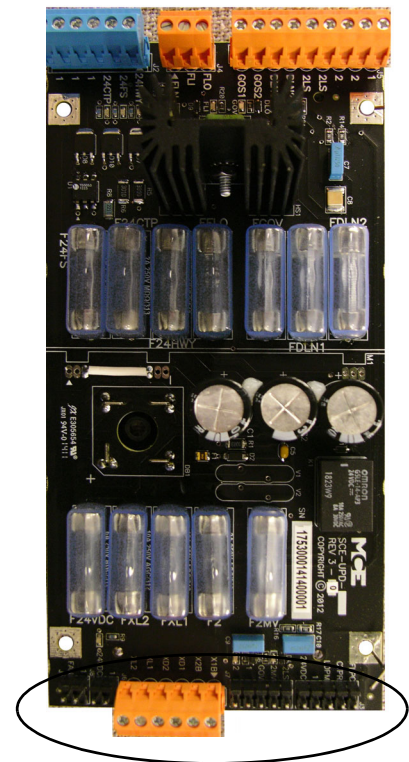
Connect AC power, motor, and valves as shown in the job prints.

### Initial Power Check

Always have a helper standing by the AC disconnect to power up the controller and to immediately shut down if necessary.

1. Verify that the Machine Room Inspection switch is in the INSP position.
2. Check the line side of the Main Power Disconnect switch to verify that all three legs are at the correct voltage.
3. Physically verify that all car and hoistway doors are closed and locked and that no one in a dangerous position should the car move unexpectedly.
4. Power up the control. Be prepared to immediately shut it down if the car attempts to move.

SCE-UPD Board



Unplug these connectors:

### Wire Separation

High voltage wiring must be routed in separate conduit from control or digital communications wiring to avoid potential interference. Size the conduit so that removing pre assembled connectors is not required.



## Installation

### Construction Run: Machine Room

If you need to run on machine room construction operation before installation is complete, minimal equipment should include:

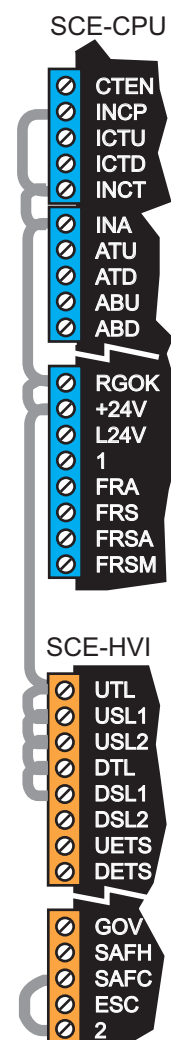
- Buffers
- Pit Stop Switch (Safety string should be complete as possible)

### Settings & Jumpers

1. On Inspection, verify CONFIG 01 > BUILDING SETUP > SYSTEM CONTROL PARAMETERS, and ELEVATOR FEATURES settings are correct for your installation.
2. Power down the controller. Use MCE jumper assembly CPU-CONSTR-JPR-HY to replace the three SCE-CPU and the top SCE-HVI connectors. See drawing to right.
3. Use MCE jumper assembly HVI-CONSTR-JPR to replace the GOV/SAFH/ connector (wired SAFH to 2). See drawing to right.
4. Set FLT BYPASS jumper (just below inspection controls) to BYPASS position.
5. Set Machine Rm Inspection INSP/NORM to INSP.
6. Set Car and Hoistway Door Bypass switches to BYPASS.
7. Power up the controller.
8. Set UTILS screen, CONSTRUCT AND BYPASS FAULTS menu, CONSTRUCTION/FAULT BYPASS to ENABLED.

If your job has optional features like emergency power or an oil pressure input, wire them or add jumpers before you run. See your job prints and/or the SYSTEM IO > PROGRAMMED INPUTS menu to verify additional inputs.

You can now run the car (or platform) on Machine Room Inspection with minimal equipment.

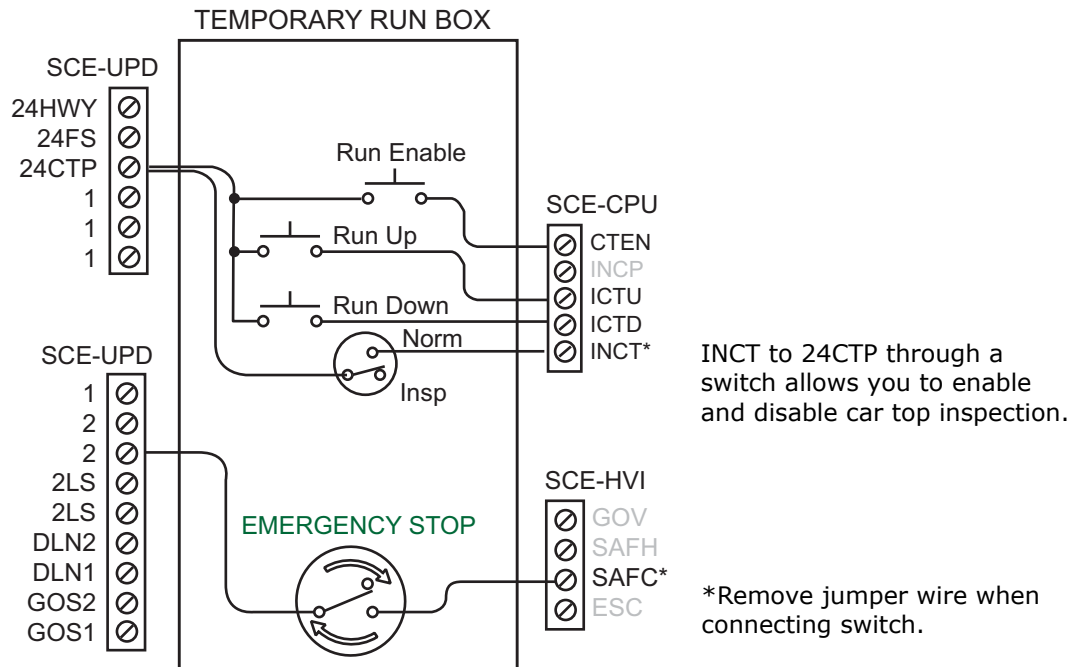


#### Caution

As you complete installation, remove jumpers placed for that equipment. Failure to remove jumpers as you install equipment will damage PC boards (such damage not covered by warranty). ALL jumpers must be removed before the car is released to passenger operation.

## Construction Run: Cartop

To run on Construction mode using a temporary run box connected to cartop inspection inputs, see the following.



## Verifying Proper Starter Operation

1. Power up in machine room inspection. The controller touch screen will display the Home page. If there is an error condition, it must be addressed or bypassed with a temporary jumper.
2. LEDs SAFETY and LOCK just below the touch screen should be ON and power provided to the valves (2LS bus indicator on SCE-UPD board lighted). Use the MACHINE ROOM INSPECTION controls to move the car (hold the ENABLE and directional switches (UP or DN). ENABLE is active in the up or down positions; off in the middle position.

### Solid State Starter

The Solid State starter controls current to the motor. If needed, adjust UP TO SPEED DELAY, [page 2-11](#), to provide a sufficient delay for the pump motor to get up to speed. Once the pump is at speed, the valves will be activated. If the motor does not spin when a demand up is present:

- Verify no faults displayed on the controller screen or the solid state starter display.
- Verify 2LS (UPD board) lighted.
  - If 2LS not lighted, check fuse F2MV and verify 120VAC between terminals 1 (1Bus) and 2MV.
  - If 2LS is lighted but the motor does not spin, check that motor thermal overload is properly connected (or jumpered out [RGOK to +24V on the CPU board]).



---

## Installation

### Landing System Interface

Install the landing system before exiting Construction operation.

#### LS-EDGE-EL

The LS-EDGE-EL landing system is connected through the SCE-CON board, usually mounted in the COP along with the CPI-2 board. See [LS-EDGE Landing System on page 1-25](#).

#### LS-QUTE 24

The LS-QUTE landing system is connected to an MC-CPI-2 board in the car operating panel and controlled discretely. The CPI-2 board also handles COP and door I/O. See [LS-QUTE-24 Landing System on page 1-37](#).

### Hoistway Limit Switches

The number and type of switches used will depend on the speed of the elevator and the type of landing system used. Install and position switches as shown on your job prints.

## LS-EDGE Landing System

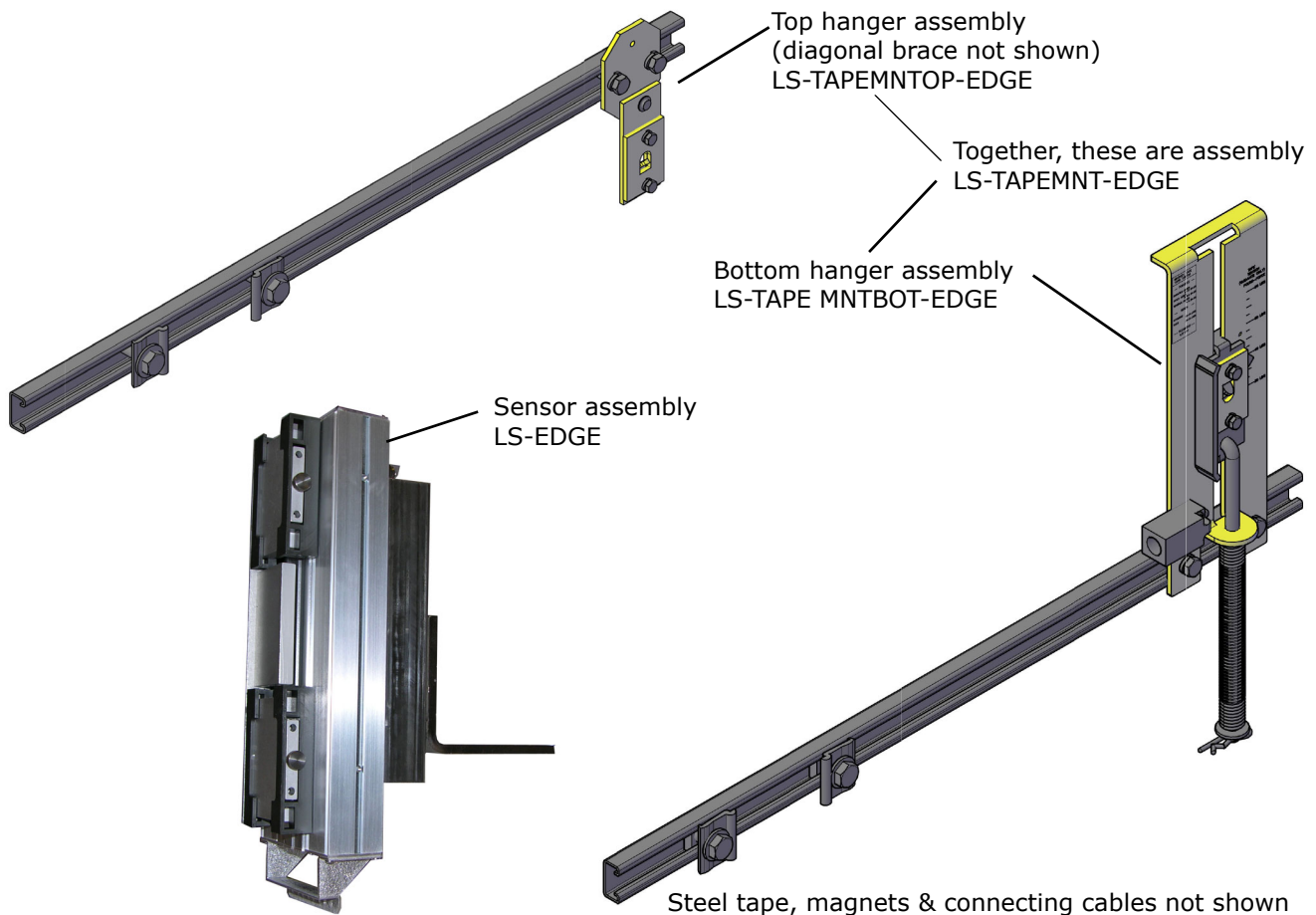
The LS-EDGE positioning system uses hall-effect sensors and perforated steel tape to report position as the car moves through the hoistway. 5.5-inch magnets are used at each door zone.

The system uses capacitor-stored power and non-volatile memory to retain position information in the event of a power failure, continuing to capture information for 10 seconds after power loss and storing the final reading for use after power restoration.

The LS-EDGE kit contains the sensor head assembly, an “L” bracket to mount the sensor assembly to a uni-strut that is in turn attached to the elevator cab (uni-strut to elevator cab not provided), steel tape, top and bottom steel tape hanger assemblies, the required number of door zone magnets and terminal magnets, and the CAT-5 electrical cables required to connect the sensor to the interface board.

Depending on applicable code, you may have to route electrical connections through conduit. If so, we recommend minimum 3/4-inch flex so that the modular connectors can slide through without binding. Perforations for cable tie wrap connection are provided on the RJ-45 plug-end of the sensor head.

**Figure 1.4 LS-EDGE Components**



## Installation

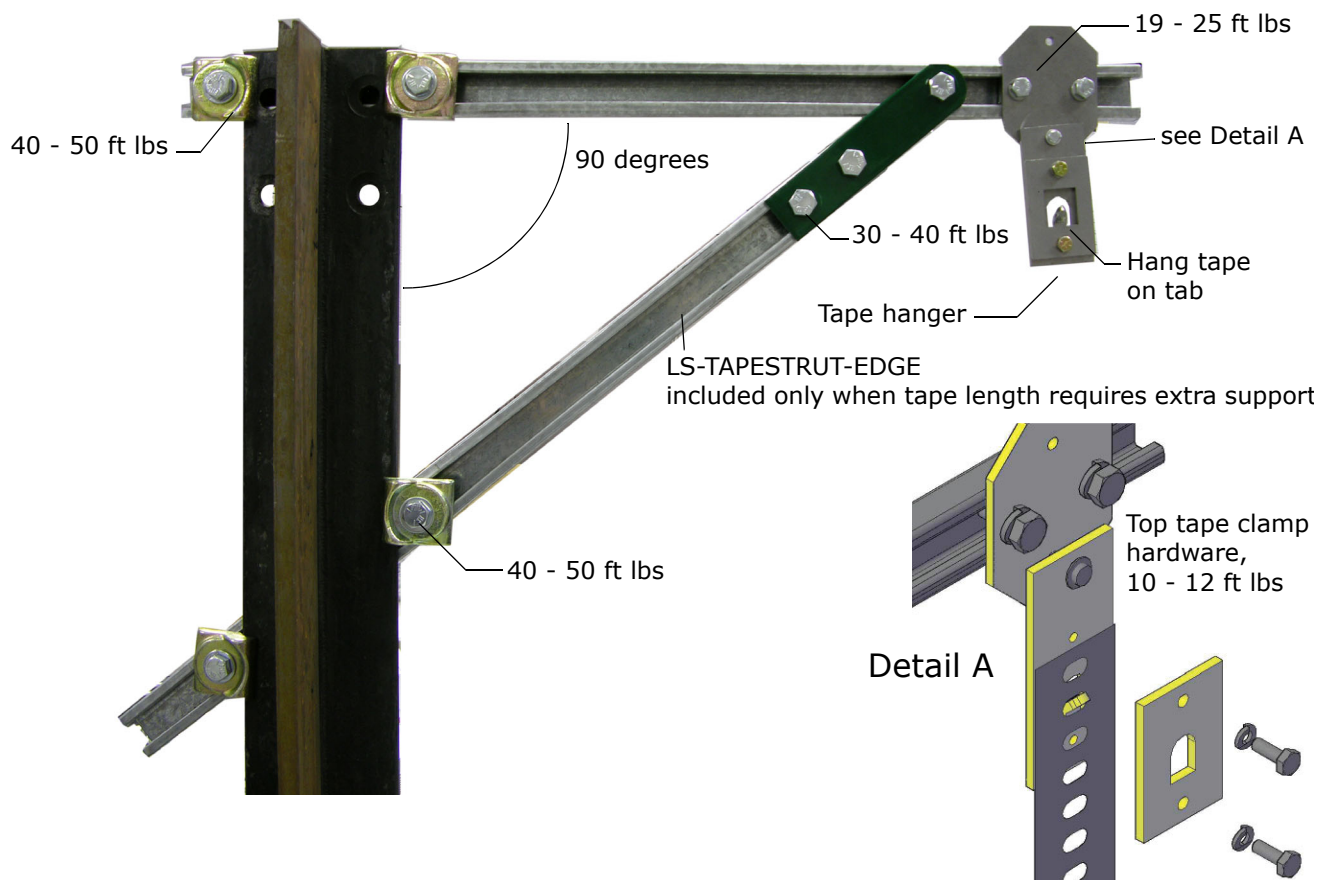
### Tape Installation

Before installing perforated tape, ensure adequate clearance from beams, walls, counterweight, cab, and terminal limit devices. Make sure the sensor is not placed so close to the governor lift arm that, when the car safeties are activated, the sensor is damaged or the car safeties cannot apply.

- Hang the tape high enough in the hoistway so that, when the counterweight is on a fully compressed buffer, the sensor assembly will not be damaged by overhead obstructions. Uni-struts are provided to attach the tape to the rails.
- Attach the tape in the pit low enough so that, when the car is on fully compressed buffer, the sensor assembly does not contact the bottom hanger assembly.
- Adjust tape spring tension so the tape does not make noise as the car travels up.
- During installation, the edges of the tape sometimes become gouged. After the tape is installed, use a fine file on the edges of the tape to remove any burrs or gouges. This will lead to much quieter operation of the encoder system as the car travels at contract speed.
- After smoothing the edges, wipe off all excess oil and dirt from the face of the tape before installing magnets. Do not use rags that will leave lint on the tape.

### Top and Bottom Hangers

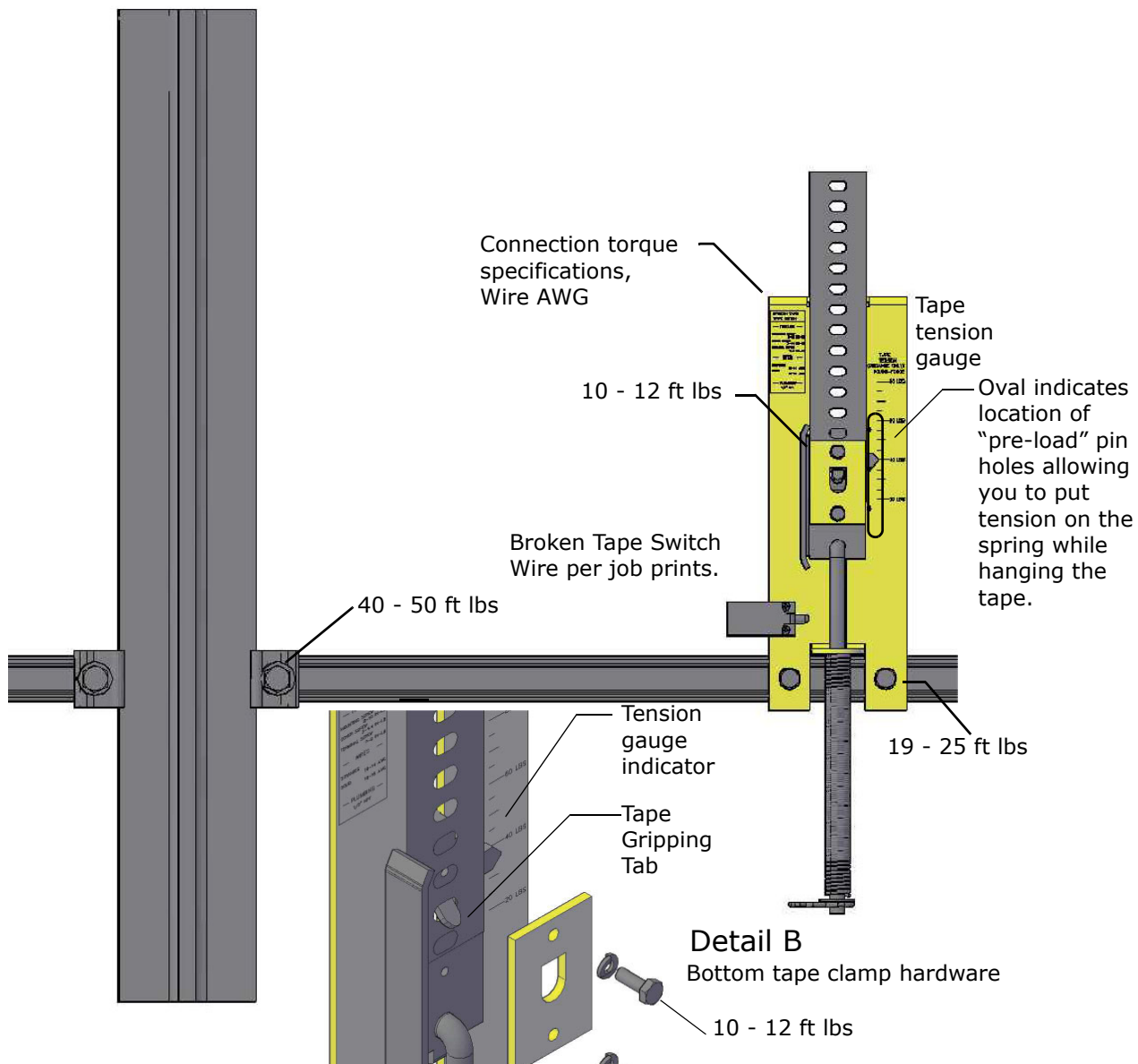
1. Attach the uni-strut for the top tape hanger across the back of the selected guide rail using the forged rail clips and hardware provided.
2. Attach the diagonal brace as shown below. (Used only when tape length exceeds 150 feet.)



3. Adjust extended strut length as required (tape suspended as close to the guide rail as adequate clearances will allow to reduce loading on end of unistrut). Secure rail mounting hardware (40 - 50 ft lbs.). (The tape hanger slides in the strut for fine adjustment later.)
4. Hook the tape on the protruding tab. Secure the top tape clamp in place (10 - 12 ft lbs.).
5. Record the distance from the rail edge to the tape edge. \_\_\_\_\_ in/mm. Bottom Hanger

The bottom hanger provides tension to minimize vibration while allowing expansion/contraction across seasonal temperature ranges. Ensure that the tape to rail edge measurement matches that recorded for the top hanger so that the car tracks the tape accurately. Do not use a plumb in case the rail stack is not exactly aligned. The scale values are provided as a guideline only. They are not calibrated. Adjust to suit the installation.

**Figure 1.5 Bottom Hanger Attachment**



## Installation

### Broken Tape Switch

The normally closed contacts on the Broken Tape Switch are used to detect a broken tape condition. The switch is mounted backwards for protection during shipment. Remove it and mount it as shown on [page 1-27](#). Position the switch so that the cam on the tensioner activates (opens) the switch when the tensioner is at the bottom of its travel (no tension). Note that switch position should be adjusted so that the switch is activated by the cam but not so close that the switch is held against its mechanical stops. The switch activates at approximately 50% of travel.

### Tape Hanging

Work from the cartop to hang the tape from the top hanger and allow it to unroll slowly as you move the car down the hoistway. It is best to allow the tape to hang and straighten for at least 24-hours before attaching it to the bottom hanger.

### Tape Tension

The tape is tensioned according to compression of the bottom tape mount spring. The tension gauge provides visual indication of low, medium, and high tension positions. Short runs, up to five floors will generally be acceptable at the low tension position. Runs to 15 floors will generally be acceptable at the medium tension position. Longer runs may require the high tension position but you should start out with the medium setting first.

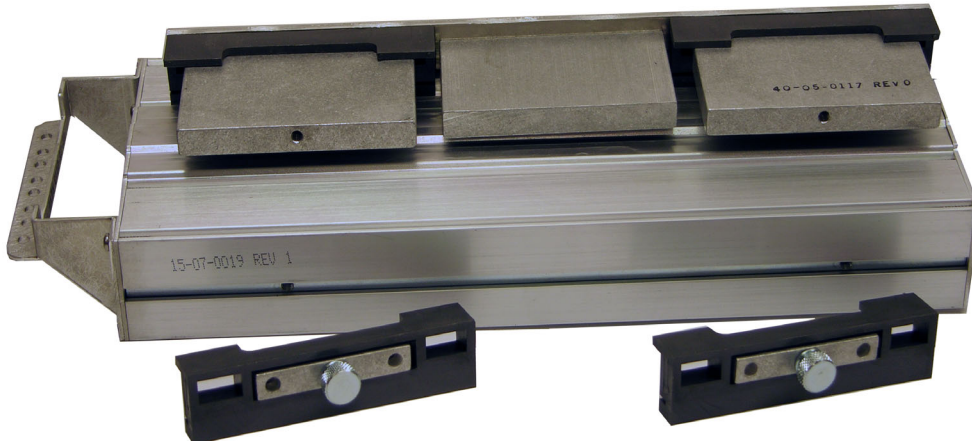
Tape tension is intended to reduce noise caused by tape vibration at contract speed. Generally, you want to use the lowest tension setting that maintains a quiet tape at contract speed.



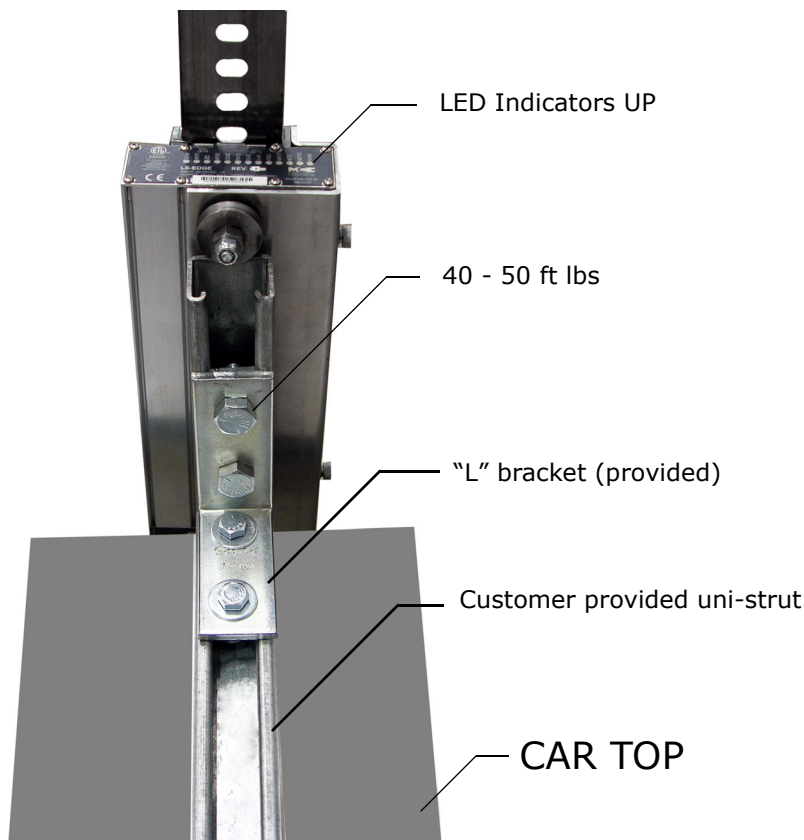
## Sensor Installation

Tape guide side pieces easily detach so the sensor can be slipped onto the steel tape.

**Figure 1.6 Sensor with Guide Sides Removed**



**Figure 1.7 Sensor Mounting**



## Sensor Alignment

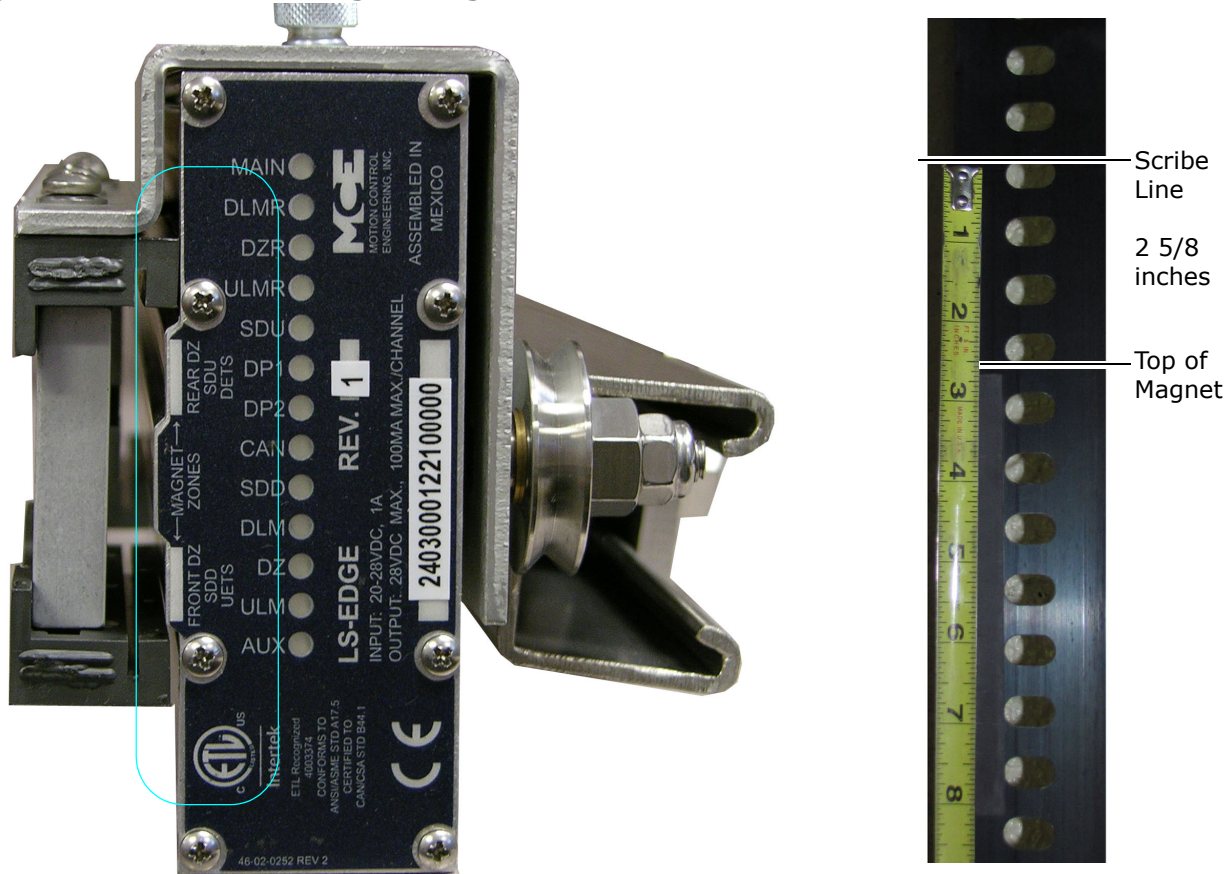
After the tape has been installed, check the sensor alignment. The sensor should not ride hard on either side of the uni-strut bracket during any part of travel through the hoistway. In high-rise buildings, if rail alignment varies substantially, it may cause the encoder guides to wear prematurely. If such misalignment is noted, the installation should be inspected more regularly.

## Installation

### Door Zone Magnets

5.5-inch strip magnets are used at each floor/opening position. Front and rear magnet alignment is shown on the sensor top label. Looking at the perforated tape from the elevator car, the magnets for the front door zone are mounted to the left of the perforated holes; magnets for the rear door zone are mounted to the right of the holes. For Element installations, special magnets marked with a stripe are used at the top and bottom terminals and for ETS magnets if used. For Element, follow front door instructions only.

**Figure 1.8 Door Zone Magnet Alignment**



To mount the door zone magnets:



#### Caution

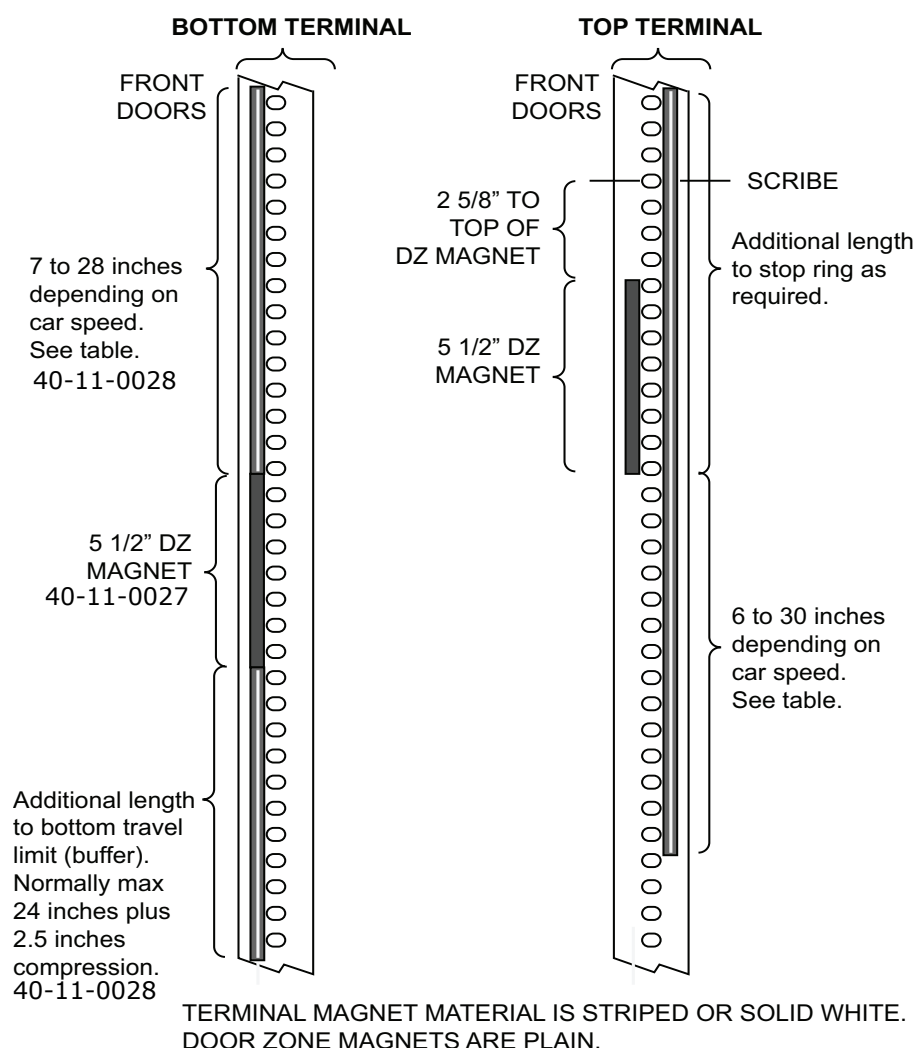
The magnets must be installed so that they face the front cover of the sensor assembly as indicated by the diagram on the LED indicator label.

1. Move the elevator level to the highest floor on inspection.
2. Make a mark on the tape even with the top of the sensor assembly. Lower the car one foot.
3. Place the top of the door zone magnet 2 5/8 inches below the scribe mark and to the left (front door) or right (rear door) of the perforated holes. For now, simply place the magnets. You can secure them permanently after final adjustments.
4. Continue mounting door zone magnets as described above for successive floors. Maximum floor height is 40.0 feet.

# Terminal Magnets

The length of Element hydraulic terminal magnets depends upon car speed, the aggressiveness of the slowdown, and the travel distance between level at floor and end of travel.

**Figure 1.9 ELEMENT Hydraulic Top and Bottom Terminal Magnets**



**Table 2. Suggested Length of Terminal Magnet Before Leading Edge of DZ Magnet**

| Car Speed                 | Length of Terminal Magnet Preceding Floor Zone Magnet | Car Speed | Length of Terminal Magnet Preceding Floor Zone Magnet |
|---------------------------|-------------------------------------------------------|-----------|-------------------------------------------------------|
| Gray area = Element Hydro |                                                       | 110 fpm   | 19 inches                                             |
| <65 fpm                   | 7 inches                                              | 125 fpm   | 22 inches                                             |
| 70 fpm                    | 8 inches                                              | 140 fpm   | 25 inches                                             |
| 75 fpm                    | 10 inches                                             | 150 fpm   | 28 inches                                             |
| 80 fpm                    | 11 inches                                             | 160 fpm   | 30 inches                                             |
| 85 fpm                    | 12 inches                                             | 170 fpm   | 32 inches                                             |
| 90 fpm                    | 13 inches                                             | 180 fpm   | 35 inches                                             |
| 95 fpm                    | 14 inches                                             | 190 fpm   | 37 inches                                             |
| 100 fpm                   | 16 inches                                             | 200 fpm   | 40 inches                                             |

## Installation

### Element Terminal Magnet Logic

The terminal limits from the LS-EDGE are positional back-up only. The controller uses serial counter data to adjust speed depending on the positions of the virtual limits. The LS-EDGE magnet logic is a redundant means of terminal limits.

- L = LEVELING MAGNET (UNMARKED)
- T = TERMINAL MAGNET PRESENT (STRIPED OR WHITE)
- O = NO MAGNET PRESENT
- X = DON'T CARE

When the controller is powered up with no sensors present, **DSL1**, **DTL**, **USL1**, and **UTL** are closed.

- **DSL1** is open in the presence of terminal magnets at ULM, DZ, DLM, or SDD sensors.
- **DTL** opens about 3.25" below dead zone of bottom terminal floor

| ULM | DZ | DLM | SDD | ULMR | DZR | DLMR | SDU |
|-----|----|-----|-----|------|-----|------|-----|
| T   | T  | T   | T   | X    | X   | X    | X   |

- **DTL** closes about 2.25" below dead zone of bottom terminal floor

| ULM | DZ  | DLM | SDD | ULMR | DZR | DLMR | SDU |
|-----|-----|-----|-----|------|-----|------|-----|
| O   | L/O | L/O | O   | X    | X   | X    | X   |

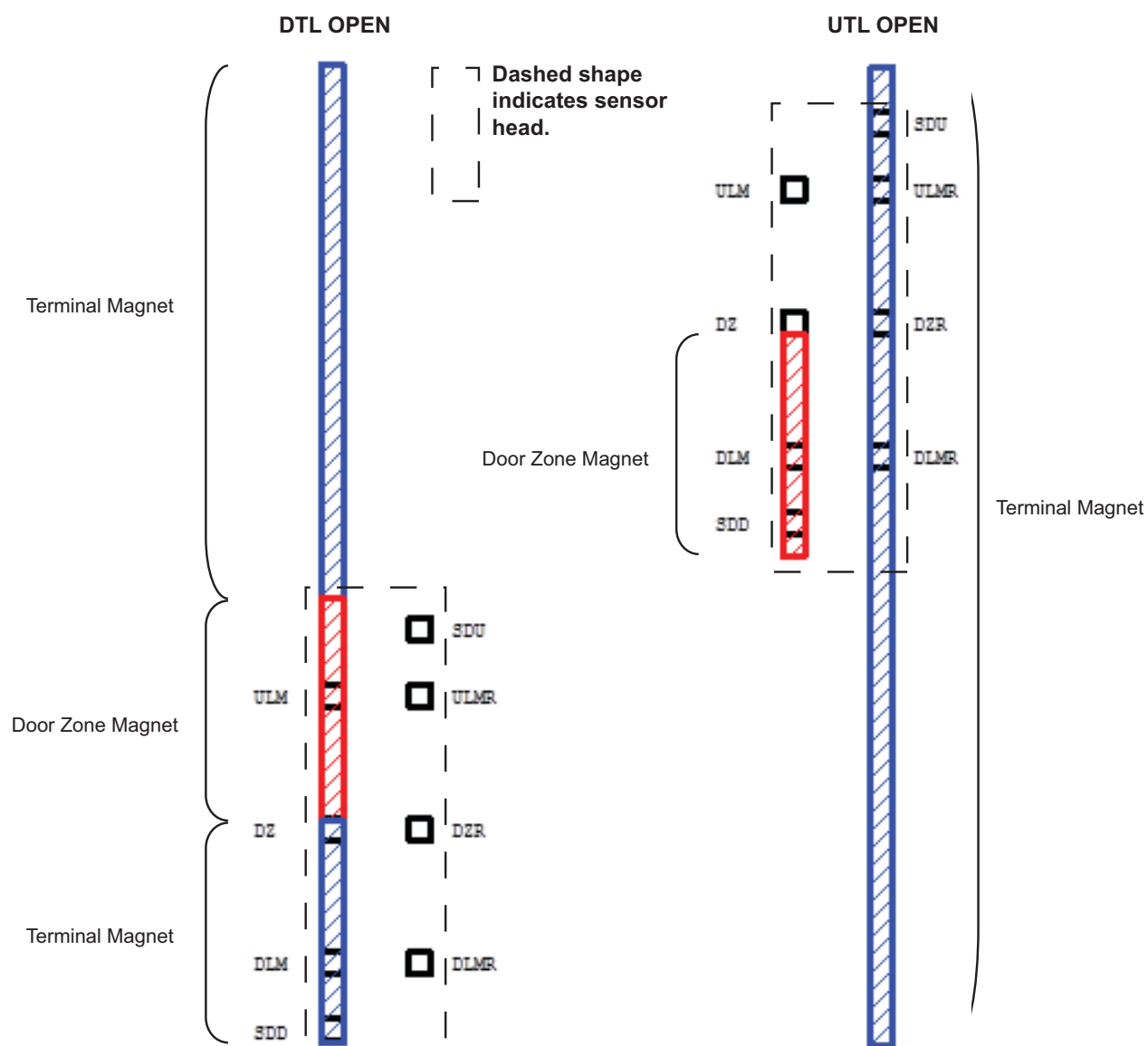
- **USL1** is open in the presence of terminal magnets at ULMR, DZR, DLMR, or SDU sensors.
- **UTL** opens about 3.25" above dead zone of terminal floor

| ULM | DZ | DLM | SDD | ULMR | DZR | DLMR | SDU |
|-----|----|-----|-----|------|-----|------|-----|
| X   | O  | L   | X   | T    | T   | T    | T   |

- **UTL** closes about 2.25" above dead zone of top terminal floor

| ULM | DZ | DLM | SDD | ULMR | DZR | DLMR | SDU |
|-----|----|-----|-----|------|-----|------|-----|
| L   | L  | X   | X   | T    | T   | T    | T   |

The conditions to open UTL and DTL are:



## Installation

### Electrical Connection

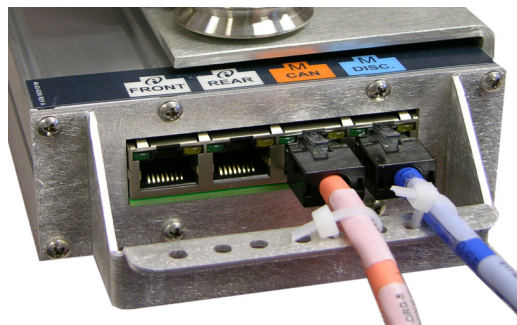
Make electrical connections as shown in the job prints. Element installations use the DISC (discrete) and M-CAN connections.



#### Caution

Secure cables with a nylon tie wrap through the holes provided. VERY IMPORTANT as this provides strain relief and prevents connector fatigue over time.

**Figure 1.10 Sensor Connections**



CAN & Discrete, 1 orange and 1 blue cable

### Hoistway Learn (Landing System Learn)

After installing the leveling and terminal magnets and setting step up/step down distances, you will need to perform a learn operation to learn floor and “switch” positions. If floor level magnets have not been positioned accurately enough, any offset can be adjusted in software (+/- 1 inch).

1. Place car on Test and Machine Room Inspection using switches on SCE-CPU.
2. Set the FLT BYPASS jumper in the BYPASS position.
3. Select the UTILS menu. Select CONSTRUCT AND BYPASS FAULTS.
4. Select CONSTRUCTION FAULT BYPASS DISABLED; press OK to ENABLE. Press EXIT. Faults are now bypassed.
5. Move car on inspection to about six (6) or more inches above bottom terminal landing.
6. Select CONSTRUCT AND BYPASS FAULTS. Press CONSTRUCTION/ FAULT BYPASS ENABLED. Press OK to disable fault bypass.
7. Move the FAULT BYPASS jumper to the NORM position. Faults are no longer bypassed.
8. Select LANDING SYSTEM UTILITIES. Select HOISTWAY LEARN (LANDING SYSTEM LEARN). Press LEARN.
9. Set Machine Room Inspection switch to NORM. The screen will display FINDING BOTTOM, followed by BOTTOM FOUND. The car will then begin to run up the hoistway.

During the run, the screen will display LEARNING. Once the top floor is learned the screen will display FINALIZING, followed by STORING HOISTWAY, and finally DONE STORING HOISTWAY.

10. Press DONE. Press EXIT. Press EXIT on the following screens until the UTILS home menu appears



## Construction Learn

The hoistway can be learned while on Construction using the MACHINE ROOM INSPECTION switches if a problem is encountered using the “normal” learn procedure. When you select LEARN, you are directed to move the car down to the bottom landing. Use the DN + ENABLE switches. A message indicates when the bottom landing position is found. You are then instructed to move the car up the hoistway and indicates as each landing is learned. Release UP + ENABLE when CAR REACHED TOP is displayed. STORING HOISTWAY and finally DONE STORING HOISTWAY are displayed.

## Element Hydro Adjustment

Perform a series of runs to various floors while observing the UTILS, Landing System View display to see that the car is stepping and leveling into each floor appropriately.

**Initial Stepping Positions** The initial settings for the run up and run down stepping positions were set at the factory using the following table (Grey area applicable to Element). When running up to a floor, the floors step up position forces the elevator to drop high speed. When running down to a floor, the floors step down position performs the same function. If this is a terminal floor, either the step up/down position, the physical position of U/DSL1 switch, or the U/DSL2 position will force high speed to drop. These settings can be verified or adjusted through the CONFIG 02, Hoistway Setup menu.

**Table 3. Hydro Initial Stepping Distances**

| Car Speed                 | Factory Set Stepping Distance From Floor Level | Car Speed | Factory Set Stepping Distance From Floor Level |
|---------------------------|------------------------------------------------|-----------|------------------------------------------------|
| Gray area = Element Hydro |                                                | 85 fpm    | 20 inches                                      |
| <35 fpm                   | 8 inches                                       | 90 fpm    | 21 inches                                      |
| 40 fpm                    | 9 inches                                       | 95 fpm    | 22 inches                                      |
| 45 fpm                    | 10 inches                                      | 100 fpm   | 24 inches                                      |
| 50 fpm                    | 12 inches                                      | 110 fpm   | 27 inches                                      |
| 55 fpm                    | 13 inches                                      | 125 fpm   | 30 inches                                      |
| 60 fpm                    | 14 inches                                      | 140 fpm   | 33 inches                                      |
| 65 fpm                    | 15 inches                                      | 150 fpm   | 36 inches                                      |
| 70 fpm                    | 16 inches                                      | 160 fpm   | 38 inches                                      |
| 75 fpm                    | 18 inches                                      | 175 fpm   | 42 inches                                      |
| 80 fpm                    | 19 inches                                      | 200 fpm   | 48 inches                                      |

With valves adjusted for speeds and slowdown characteristics desired, adjust floor height and stepping offsets (CONFIG 02, Hoistway Setup) until the car levels properly at each floor without releveling.

Dead Zone (releveling limits) may be adjusted through CONFIG 02, System Control Parameters, Dead Zone Distance if required.



## Installation

**USL1, DSL1** The positions of the physical slow down (USL1/DSL1) switches are determined by the length of the terminal magnets. The leading edge of each terminal magnet is the slowdown position. If high speed has not already been dropped, encountering the slow down will force it to drop. Aggressive slow down settings may require that the terminal magnets be trimmed a little shorter than the factory recommended lengths. The length should be about seven inches less than the associated terminal floor stepping distance or no more than nine inches less than this distance.

**USL2, DSL2** The position of the virtual slow down (USL2/DSL2) switches are determined by their user programmed distance (CONFIG 02 > NTS2 SWITCHES). If high speed has not already been dropped, encountering the slow down will force it to drop. This distance should be the same as the associated terminal floor stepping distance or no more than two inches less than this distance.

**UTL, DTL** UTL and DTL switches are automatically set to 3.25 inches beyond floor level at each terminal (see [See “Element Terminal Magnet Logic” on page 32.](#)). If a terminal limit is encountered, the car will move no further in that direction.

You can also adjust the position of the virtual terminal limits by first enabling them (CONFIG 02 > HOISTWAY SETUP > U/DTL LIMIT OPT > VIRTUAL), and then setting their position (U/DTL DISTANCE). This is especially useful for short distances in the pit and/or overhead.

### Landing System Troubleshooting Tools

Touch screen tools will help you isolate any problems with the landing system;

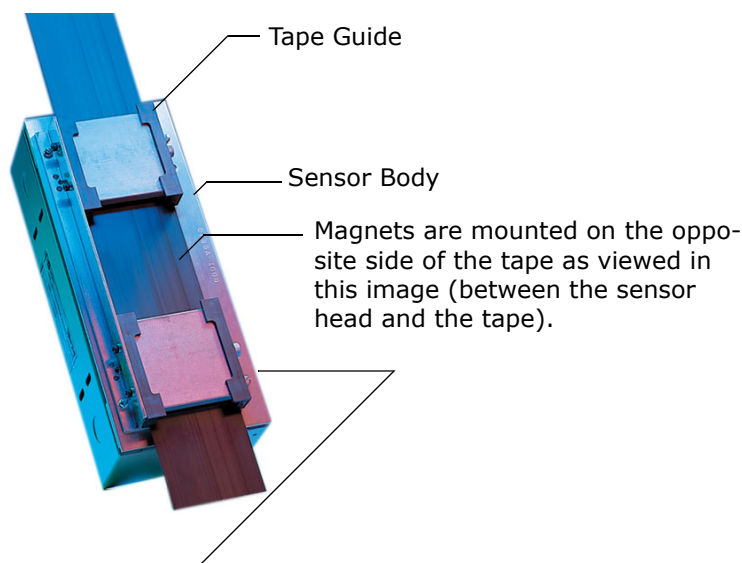
- SYSTEM DIAG > LANDING SYSTEM
- STATUS INFO > ADDRESS DIAGNOSTICS > LS-EDGE SPA and LS-EDGE SPB

Address Diagnostics will require register address assistance from MCE.

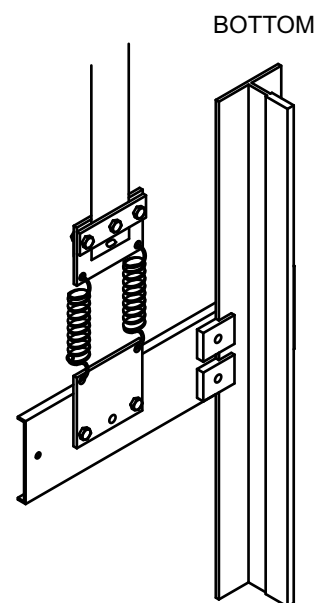
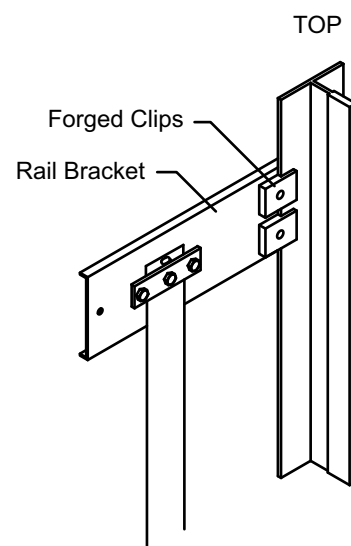
## LS-QUTE-24 Landing System

The LS-QUTE-24 system operates on 24 VDC. The system uses 3-inch wide steel tape hung between tape support brackets clamped across the back of the guide rail. Door zone, stepping, and absolute floor encoding magnets are placed on the tape and read by a sensor head mounted to the car. Tape installation is illustrated in the prints for the job.

- Holes are available on the sides of the landing system sensor head for mounting to support brackets or structural channels as required to position the sensor head appropriately to the tape.
- Make sure sensor mounting hardware allows sensor position to be adjusted forward-backward. The tape guide assembly on the sensor head “floats”, allowing about 1/2-inch side-to-side movement.

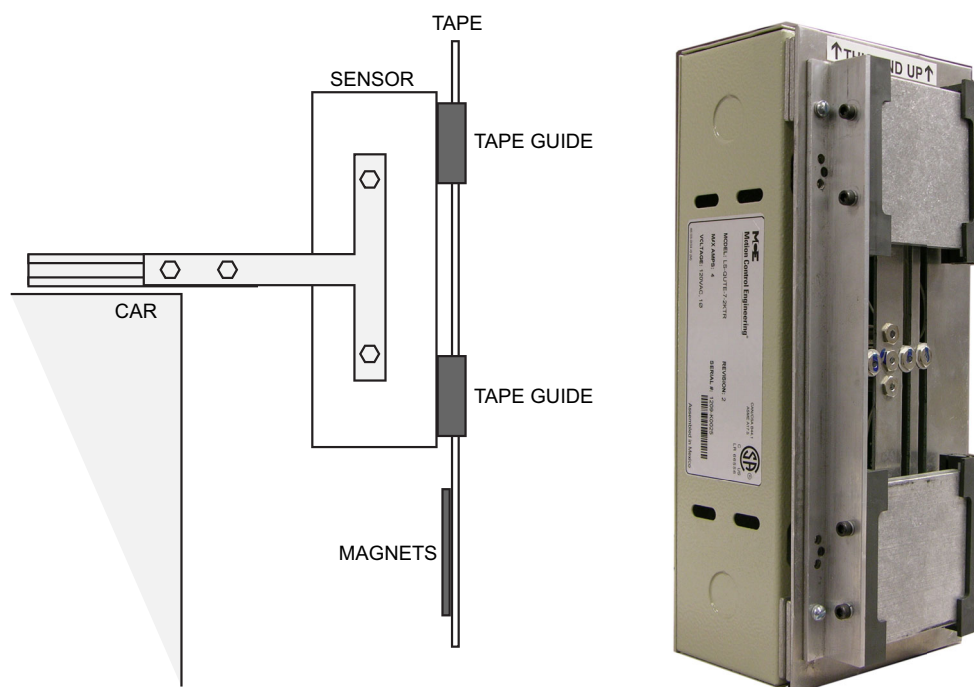


Thumb screws allow one side of the tape guides to be removed so the tape can be slipped in and the guides easily reassembled.



## Installation

- To install the tape into the tape guides on the LS-QUTE landing system box, remove the 2 thumbscrews on the 2 guide assemblies, insert the tape and reinstall the guides and thumbscrews (tighten firmly).



- After inserting the steel tape into the tape guides, check the location of the landing system box. The car should be at the top of the hoistway to make it easier to see if the alignment is causing any stress or binding on the tape guides.
- Make sure that the box is vertical and plumb with the tape. This allows easy tape movement and avoids excessive wear on the tape guides (using a level is helpful).
- Move the elevator to the top and bottom of the hoistway, checking for smooth tape movement and to make sure there is no excessive pressure on the tape guides. Correct any problems immediately.

### Installing the Magnetic Strips on the Steel Tape

Carefully read and follow the Magnet Installation instructions in the job prints.

### Power On Behavior with Absolute Floor Encoding

Absolute floor encoding allows the controller to read encoding vanes or magnets at each landing to identify the floor. The behavior of the car when power is turned ON is as follows:

- If the car is not at a landing when power is turned ON, it will move toward the closest landing, provided that any abnormal conditions have been corrected. When the car reaches a landing and is in the Door Zone with leveling completed, the controller reads the floor code magnets and corrects the Position Indicator. If the car is on Automatic, and if a home floor has been designated, the car will move to the home landing.
- If the car is at a landing, in the Door Zone with leveling completed when AC power is turned ON, the controller will read the floor code magnets and correct the Position Indicator. Again, if the car is on Automatic Operation and if a home floor has been designated, the car will move to that landing to park.

## Serial Hall and Car Call Boards



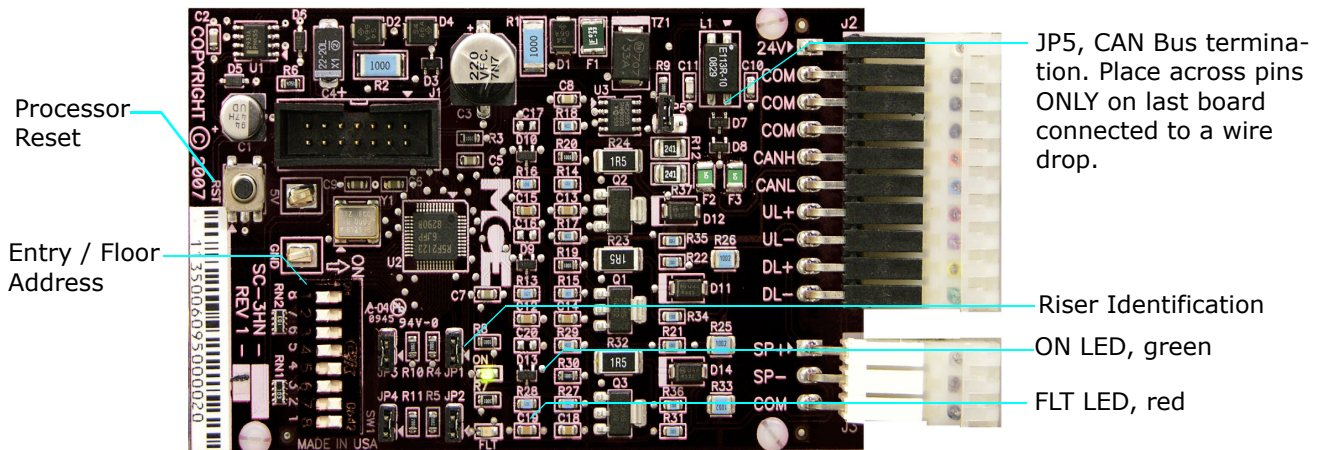
### Caution

PC boards can be easily damaged by Electrostatic Discharge (ESD). Use a properly grounded wrist strap when touching PC boards. Do not touch PC Boards unless you are properly grounded.

## Hall Calls

Element controllers use serial hall calls. A four-wire drop from the controller provides a connection point for SC-3HN boards that in turn provide analog inputs and outputs for the hall call buttons and LEDs. Refer to the drawings package for connection instructions to your fixtures.

**Figure 1.11 SC-3HN Three Input Serial Hall Call Node Board**



## General Installation

All SC-3HN connections are at one end of the board. One board is installed in each hall call panel electrical box. Refer to the job prints.

1. Make connections to the hall call buttons and indicators. (See job prints.)
2. Make connections to the signal/power drop.
3. Verify floor number and door (F/R) location, [Floor Number and Front or Rear Opening on page 1-40](#).
4. Verify riser assignment, [Riser Assignment on page 1-40](#).
5. Last board on wire drop only: Place a jumper on JP5. All other boards: Ensure jumper NOT placed across JP5 pins, [Riser Assignment on page 1-40](#).
6. Insert board in anti-static sleeves and tape closed using supplied ESD sticker.
7. Tuck bag/board into electrical box and re-install hall call.



## Installation

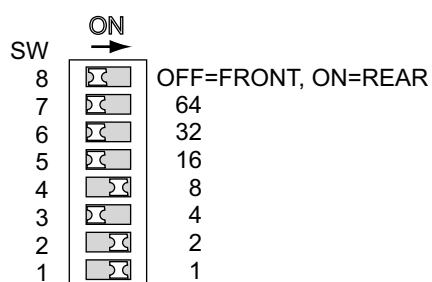
**Addressing and CAN Bus Termination** Set SC-3HN addresses as shown in the job prints for the installation. Generic examples are provided below.

**Riser Assignment** Element supports only one hall riser.

**Table 1.1 Riser Assignment by Jumper Binary Representation**

| JP3 | JP2 | JP1 | Riser                                    |
|-----|-----|-----|------------------------------------------|
| 1   | 1   | 1   | Main A (Binary value 7) USE FOR ELEMENT. |
| 1   | 1   | 0   | Main B (Binary value 6)                  |
| 1   | 0   | 1   | Main C (Binary value 5)                  |
| 1   | 0   | 0   | Main D (Binary value 4)                  |
| 0   | 1   | 1   | Auxiliary A (Binary value 3)             |
| 0   | 1   | 0   | Auxiliary B (Binary value 2)             |
| 0   | 0   | 1   | Auxiliary C (Binary value 1)             |
| 0   | 0   | 0   | Auxiliary D (Binary value 0)             |

**Floor Number and Front or Rear Opening** DIP switch SW1, switches 1 through 7 set the floor address for the board, beginning with Floor 1. Switch 8 selects Front or Rear opening (ELEMENT uses FRONT OPENINGS ONLY).



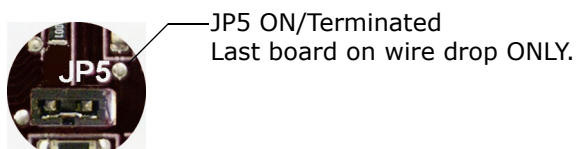
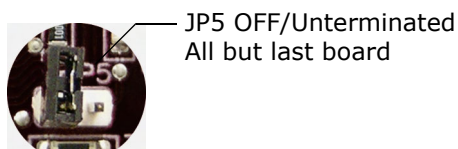
When setting addresses, use the values silk-screened on the circuit board, not those shown on the DIP switch.

Floor address example = 11

ON switch adds its value to floor address.

**Baud Rate** Jumper JP4 is reserved for future use to select a different CAN Bus baud rate should it become necessary. For now, the only option is to leave the JP4 jumper in place, setting baud rate to 125 kbps.

**CAN Bus Termination** The CAN Bus must be terminated ONLY ON THE LAST SC-3HN connected to the wire drop (farthest board from Dispatcher).



**On Board Diagnostics** Two LEDs provide diagnostic information: The ON LED (green) and the FLT LED (red).

**ON LED** The ON LED reflects power/communications status.

- ON: Communications OK
- OFF: Board is not receiving power or has no software loaded.
- Blinking: Communications error - more than ten seconds have passed without a message from the group dispatcher.

**(FLT) FAULT LED** The FLT LED reflects the status of the analog outputs.

- ON steady: Internal fault -
  - Replace board if problem persists
- OFF: No Errors detected.
- Blinking: Output overload or disconnection. Pressing the Reset button on the SC-3HN board will clear a blinking Fault LED.
  - Board inventory not yet run. See [Hall Bus Inventory on page 2-15](#).
  - Overload: Excessive current draw. Resets when current draw is corrected and call button is pressed again.
  - Not Connected: The output is on (button pressed) but nothing is connected to the UL- or DL- output. Resets when the lamp is connected and the call button is pressed again.
- Output Shorted: If short is very quick, the LED will flash. Pressing the call button for a few moments will cause the board to reboot. Resets when the short is removed and the call button is pressed again.

**Inventory** When all halls calls are installed and functioning properly, the system allows you to save them into memory (inventory them). In the future, when looking for a burned out LED or a stuck switch, the same UI screen will automatically test all inventoried hall calls for you. See [Hall Bus Inventory on page 2-15](#).



## Installation

### SC-3HN-2 Hall Calls

Element controllers use serial hall calls. A four-wire drop from the controller provides a connection point for SC-3HN-2 boards that in turn provide analog inputs and outputs for the hall call buttons and LEDs. Refer to the drawings package for connection instructions to your fixtures.

#### Note

The SC-3HN-2 board can replace an older SC-3HN board and is functionally backward compatible, but will require rewiring of the Hall buttons and lamps as shown in the wiring diagram.

**Figure 1.12 SC-3HN-2 Three Input Serial Hall Call Node Board. Gen. 2**



### General Installation

The fixture SC-3HN-2 connections are at one end of the board. The Power and Communication Connections are on the other end. One board is installed in each hall call panel electrical box. Refer to the job prints.

1. Make connections to the hall call buttons and indicators. (See job prints.)
2. Make connections to the signal/power drop.
3. Verify floor number and door (F/R) location, [Floor Number and Front or Rear Opening on page 1-40](#).
4. Verify riser assignment, [Riser Assignment on page 1-40](#).
5. Last board on wire drop only: Place TERM switch up in the direction of the arrow. All other boards: Ensure TERM switch is down, [Riser Assignment on page 1-40](#).
6. Insert board in anti-static sleeves and tape closed using supplied ESD sticker.
7. Tuck bag/board into electrical box and re-install hall call.



**Addressing and CAN Bus Termination** Set SC-3HN-2 addresses as shown in the job prints for the installation. Generic examples are provided below.

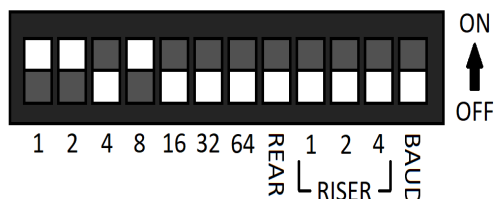
**Riser Assignment** Element supports only one hall riser.

**Table 1.2 SC-3HN-2 Riser Assignment by Switch Binary Representation**

| Riser 1 | Riser 2 | Riser 4 | Riser                                    |
|---------|---------|---------|------------------------------------------|
| 0       | 0       | 0       | Main A (Binary value 0) USE FOR ELEMENT. |
| 1       | 0       | 0       | Main B (Binary value 1)                  |
| 0       | 1       | 0       | Main C (Binary value 2)                  |
| 1       | 1       | 0       | Main D (Binary value 3)                  |
| 0       | 0       | 1       | Auxiliary A (Binary value 4)             |
| 1       | 0       | 1       | Auxiliary B (Binary value 5)             |
| 0       | 1       | 1       | Auxiliary C (Binary value 6)             |
| 1       | 1       | 1       | Auxiliary D (Binary value 7)             |

**Floor Number and Front or Rear Opening** DIP switch SW2, the first seven switches set the floor address for the board, beginning with Floor 1. Switch **REAR** selects Front or Rear opening (ELEMENT uses FRONT OPENINGS ONLY).

SW2



When setting addresses, use the values silk screened on the circuit board, not those shown on the DIP switch.

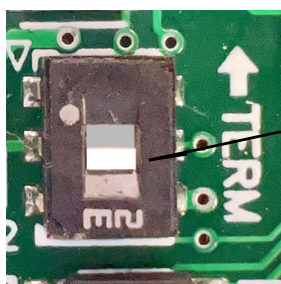
OFF=FRONT, ON=REAR

Floor address example + 11

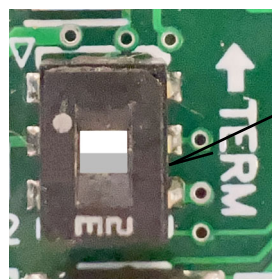
ON switch adds its value to floor address (binary format).

**Baud Switch** The Baud Switch is reserved for future use to select a different CAN Bus baud rate should it become necessary. For now, the only option is to leave the Baud switch OFF, setting baud rate to 125 kbps.

**CAN Bus Termination** The CAN Bus must be terminated **ONLY ON THE LAST** SC-3HN-2 connected to the wire drop (farthest board from Dispatcher).



TERM Switch OFF/  
Unterminated  
All but last board



TERM Switch ON/  
Terminated  
Last board on wire  
drop ONLY.

## Installation

**On Board Diagnostics** Two LEDs provide diagnostic information: The ON LED (green) and the FLT LED (red).

**ON LED** The ON LED reflects power/communications status.

- ON: Communications OK
- OFF: Board is not receiving power or has no software loaded.
- Blinking: Communications error - more than ten seconds have passed without a message from the group dispatcher.

**(FLT) FAULT LED** The FLT LED reflects the status of the analog outputs.

- ON steady: Internal fault -
  - Replace board if problem persists
- OFF: No Errors detected.
- Blinking: Output overload or disconnection. Pressing the Reset button on the SC-3HN-2 board will clear a blinking Fault LED.
  - Overload or Output Shorted: Excessive current draw. Resets when current draw is corrected and call button is pressed again.
  - Two or more SC-3HN-2 boards have the same floor address and riser ID.

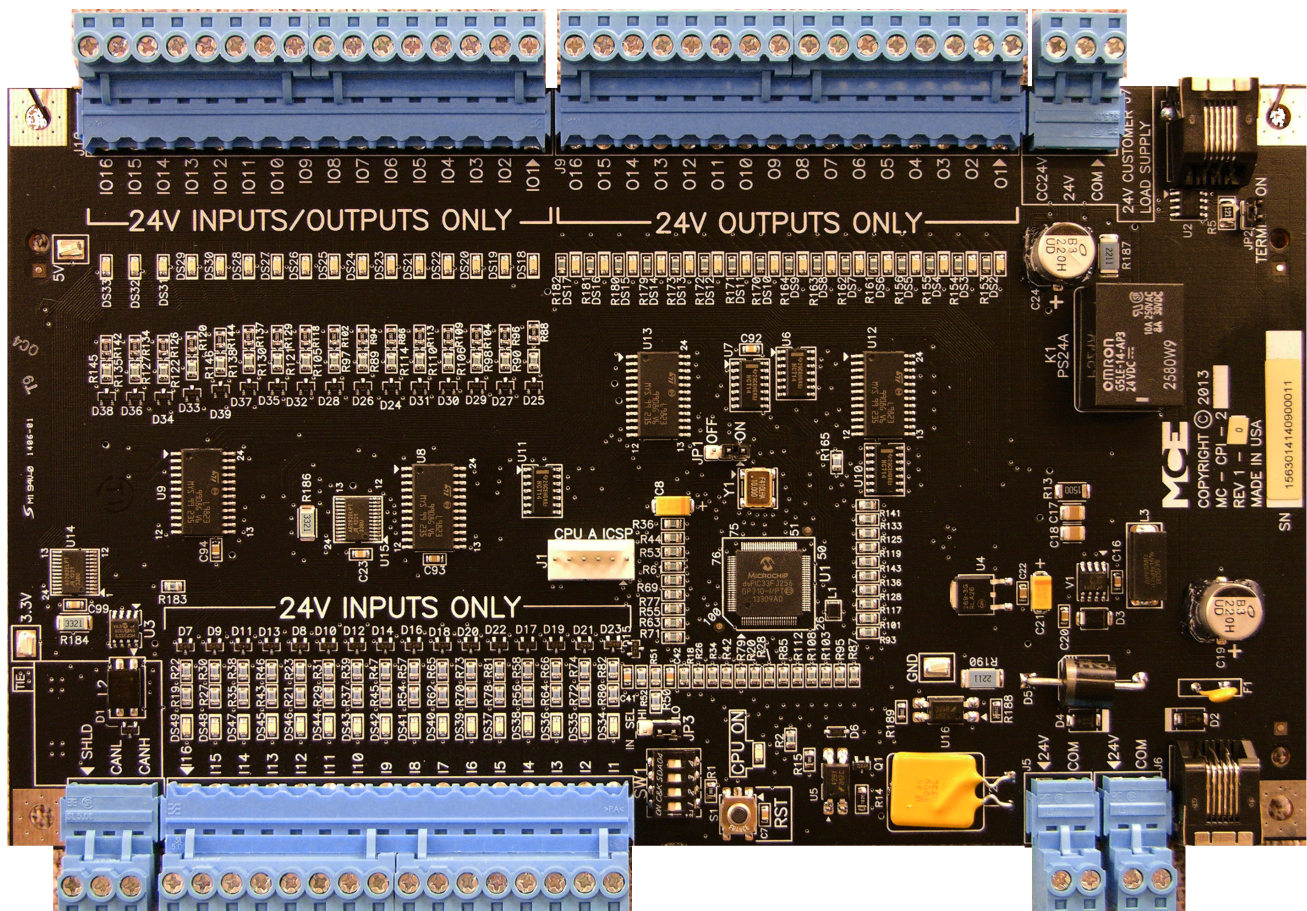
## Serial Car Call Board

The MC-CPI-2 board, mounted in the car operating panel, converts the discrete closures from the panel buttons and switches to serial data on the CAN bus. Unused spare inputs to and outputs from these boards are set to NOT USED at the factory. If a CPI-2 board is replaced in the field or if controller software is upgraded, it is very important to check programmable CPI-2 board inputs and outputs and verify unused connections are set to NOTUSED. The CPI-2 board is also responsible for landing system control. For additional information, please refer to [page 1-24](#) and [page 2-33](#).

### Installation Instructions

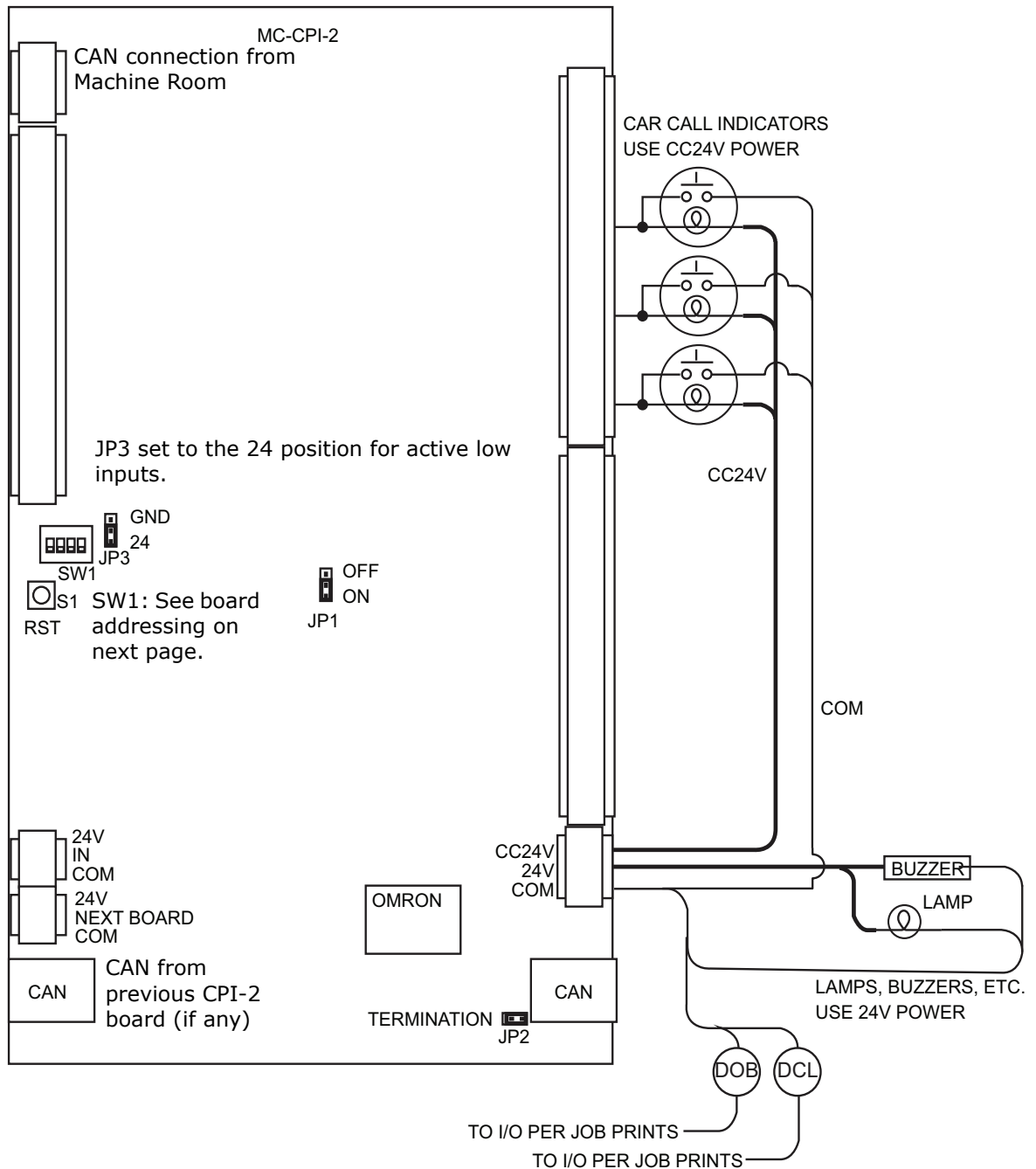
1. Turn the power off at the main disconnect.
2. Mount the MC-CPI-2 board(s) inside the COP using the supplied hardware and providing sufficient clearance for the components. Verify board address, [page 1-47](#).
3. CAR CALL indicator LEDs or lamps must be powered from the CC24V supply. Other lamps, PIs, and buzzers must be powered from the 24V supply. Button contacts are generally connected to Common and to their specific I/O terminal.
4. Refer to the job prints to wire the MC-CPI-2 board.

**Figure 1.13 MC-CPI-2 Serial Car Operating Panel Board**



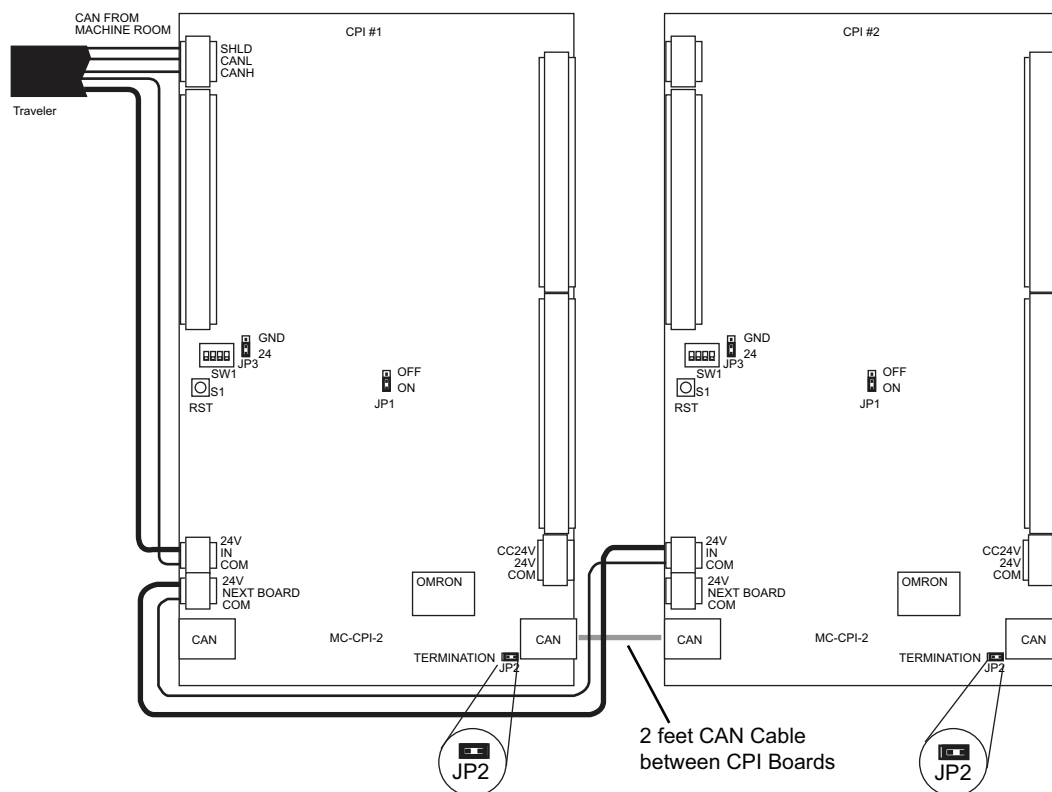
## Installation

**Figure 1.14 CPI-2 Board Configuration**



JP2 CAN Termination. If just one board is used, this jumper must be installed. If more than one board is used, this jumper must be installed on the LAST board also. See next figure.

**Figure 1.15 CPI-2 Interconnect**



- **Board address switches:** Four-position DIP switch SW1 provides a unique address for each CPI-2 board (you should never have two CPI-2 boards with the same SW1 setting).

| SW 1  | CPI-2 Addresses |     |     |
|-------|-----------------|-----|-----|
| Board | SW1             | SW2 | SW3 |
| 1     | Off             | Off | Off |
| 2     | On              | Off | Off |
| 3     | Off             | On  | Off |
| 4     | On              | On  | Off |

- SW1, switch 4, determines CAN baud rate:
  - ON: 500k - used if board is mounted INSIDE the Element controller
  - OFF: 250k - default setting; use with board mounted in COP or on car

## Lanterns and PIs

Install and set up lanterns and position indicators as shown in the job prints and as directed in the literature accompanying the fixture.

### Serial PI Configuration

Element is compatible with either CE or E-Motive serial fixtures.

- CE: All switches on SCE-CPU board DIP switch S2: ON
- E-Motive: All switches on SCE-CPU board DIP switch S2: OFF



## Installation

### Door Operator

Door operators interface to the SCE-CPU, SCE-HVI, and MC-CPI-2 boards. Door operator connections are shown in the prints for the specific job. Separate documentation is also included with the door operator itself. Several door operators are supported.

- MCE Universal door control: Refer to job prints.
- MCE SmarTraq harmonic: See job prints and MCE Manual 42-02-Doo8 shipped with door operator.
- GAL MOVFR: See job prints and GAL Instruction shipped with door operator.

Each door operator is shipped with installation instructions. Use these installation instructions and the prints for the individual job to install the door operator. For additional information, see also [Door Operator Compatibility on page 2-44](#).

### Door Position Monitor Switch

If you are in a jurisdiction where ASME A17.1 - 1996 or later is being enforced, Door Position Monitor switch(es) connected to the DPM input must be added to monitor the position of the closed doors. This must be a separate physical limit switch that makes up approximately 1 to 2 inches before the doors lock. The DPM switch connects to a CPI-2 board usually located on the cartop or in the COP enclosure. See your job prints.

### Load Weigher

For customer provided load weighers, the Element hydraulic controller provides the following discrete inputs:

- Load Light Input - When activated the elevator will only allow the number of car calls specified by the Light Load Car Call Limit parameter to be registered. If more are registered, all car calls are canceled. A discrete load weigher contact is typically wired to this input, indicating that a very minimal passenger load exists in the car. The controller uses this input as an anti nuisance tool by limiting the number of car calls that may be placed while this input is active.
- Load Disp - This input indicates that the car is loaded to a point at which it will prepare to leave the lobby (begin closing doors).
- Load Heavy - This input indicates that the car is loaded to the point at which it should no longer accept hall call assignments (heavy load bypass). A “discrete” load weigher contact is typically wired to this input, usually indicating that the load is 75%-80% of full load. The controller uses this input to temporarily bypass hall calls to avoid overload.
- Load Over - While the car is stopped at a landing with the doors open, activation of this input will hold the doors open until the overload condition is cleared. Fire service overrides Load Over.
- Load Over2 - While the car is stopped at a landing with the doors open, activation of this input will hold the doors open until the overload condition is cleared. Fire service does not override Load Over2.

## Preparing the Car to Run on Test/Passenger Mode

1. Verify that the Hoistway Door and Car Door Bypass switches work properly.
  - Turn the switches ON. Verify that the indicators on the HC-CTL board turn on and that the car will run with doors open on Cartop Inspection only.
  - Turn the Hoistway Door and Car Door Bypass switches OFF. Verify that the car will not run with doors open.
2. Verify that the door operator is operating properly with all door equipment (clutches, rollers, etc.) properly adjusted with the correct running clearances and speeds.
3. Verify the door limits sequencing - DOL, DCL and DPM.
4. Make sure the car doors are closed and that all hoistway doors have been closed and locked.
5. Ensure that the car gate and door locks are made.
6. Run the car through the hoistway on Cartop Inspection to make sure that the hoistway is completely clear.
7. Verify that the landing system has been installed according to the installation instructions. Check PI stepping, floor encoding, leveling and door zone.
8. Verify that the limit switches are operating properly.
9. Verify that the Access limit switches operate properly (car stops in the proper location).

## Test Mode Operation

The purpose of TEST mode is to allow operation of the car so final adjustments can be made without cycling the doors. When the elevator is operated in TEST mode, elevator doors do not open (door open functions are disabled during TEST mode operation).

Enable TEST mode by placing the TEST/PRETEST switch on the SCE-CPU board in the TEST position. Car Top Inspection and MACHINE RM INSPECTION switches must be in the NORM or normal positions. The touch screen should show “TEST MODE” and not “NORMAL.” If the expected indication is not displayed, check to see what message is being displayed and correct the problem. In TEST mode:

1. Every time the car stops, a non-interference timer is started and the timer must elapse before the car can move again. Once the timer has elapsed, the car will move as soon as the next car call is registered. If a car call is placed right after the car stops, the noninterference timer must elapse before the car will move.
2. If the elevator is trying to level, it will not pick high speed and leave the landing until it has completed the leveling process. If the car overshoots landings, the valves and/or direction limits at terminal landings may need to be adjusted.
3. Slowdown switch inputs (DSL1 and DSL2 for the bottom terminal and USL1 and USL2 for the top terminal) should never be inactive at the same time when the doors are closed and locked and the safety circuit is closed.





## Installation

### Running on Test/Passenger Mode



#### Caution

If the door operator is not working, pull the door fuses and close the doors so that the door clutch will not hit any of the door lock rollers. Take whatever steps are necessary to keep the installation safe, but make sure that the car top is still accessible after closing all of the doors.

1. On Inspection, move the car to the bottom landing.
2. Verify that the car is in door zone (PI = 1) and indicators ULM and DLM are OFF and DZF is ON.
3. Place the Cartop Inspection, In-car Inspection and Access Enable switches in the Normal position.
4. On the SCE-CPU board, place the Test switch in the TEST position.
5. Place the MACHINE RM INSPECTION mode switch in the NORM position. If the LCD does not show Test Mode, see what message is being displayed and correct the problem.

If the car is not at a landing, it will move to a landing. If the car is at a landing but not in the door zone, either the ULM or DLM input (diagnostic LEDs ULM or DLM) is ON, the car should perform a relevel. If the relevel is not successful, check the following:

- If the diagnostic LEDs ULM or DLM are ON, but the car does not move, verify that there are no faults displayed on the LCD.
- If the car is trying to level, it will not leave the landing for a call until leveling is complete.

### Final Adjustments on Test Mode

The following final adjustments should be made with the elevator operating on Test mode. The LCD should indicate TEST MODE.

#### Hydraulic Valves

Adjust hydraulic valves for proper speed, acceleration, deceleration, etc. and check contract speed. A software controlled timer (SOFT-STOP TIMER option) automatically provides pump motor overrun for Soft-Stop operation. Ensure that the Soft-Stop Timer is set to the desired value for it to be on and to NONE for it to be off.

#### Slowdown and Limit Switches

For LS-QUTE only, disconnect the stepping switch inputs (terminals STU and STD for 3 or more landings) and verify proper operation of all slowdown and limit switches for slowing and stopping the car at both terminal landings.

#### Relevel Operation

If the car re-levels up after stopping at the floor, it will respond immediately the first time it re-levels up. Further re-leveling at that landing will be delayed by a computer-controlled timer (usually 3 seconds). This process will repeat every time the car runs to another floor (the first up relevel is always normal, not delayed). Down leveling is always normal and not affected by this timer.

### Final Adjustments on Independent Service

The following final adjustments should be performed with the elevator operating on <sup>1</sup>Independent Service. (IND SERV input, if provided, active.)

- Verify/place the Test switch in the center (normal) position.
- Activate the IND SERV input.
- Verify display indicates INDEPENDENT MODE.

**Motor/Valve Limit Timer**

A motor/valve limit timer is provided to take the car to the bottom landing and open the doors if the motor or a valve is operating for too long.

**Door Operator Adjustments**

Complete the final door operator adjustments. Verify smooth opening and closing. Doors can be opened beginning at 3" before the floor or at the floor. Hydraulic elevators are usually set up to open the doors only after the car stops, but pre-opening is available.

Verify operation of the photo eye and/or safety edge, door open and close buttons.

**Door Open/Close Protection**

Verify proper door open protection and door close protection operation.

- Door open protection: If the doors fail to open on the first attempt, they will make two more attempts. Each attempt will generate a fault message, "Door open fail 1 (2/3)". If the doors are still unable to open, a door open fault will be declared. The door open fault is cleared by a successful door opening cycle or by pressing the Fault Reset button.
- Door close protection: If the doors fail to close on the first attempt, they will make two more attempts. Each attempt will generate a fault message, "Door close fail 1 (2/3)". If the doors are still unable to close, a door close fault will be declared. The door close fault is cleared by a successful door closing cycle or by pressing the Fault Reset Button. If the door close fault continues, a door close fault shutdown will occur. The car doors will fully reopen, all calls will be canceled, and the car will shut down.

**Final Adjustments on Passenger Operation**

The following final adjustments should be performed with the elevator operating on Passenger operation.

- Verify/place the Test switch on the SCE-CPU board in the center (normal) position.
- MACHINE ROOM INSPECTION MODE switch in the NORM position.
- Place the Independent Service switch in the OFF position.
- Verify that the display indicates PASSENGER.

**Hall Calls**

Place hall calls for all of the landings and make sure that all hall calls function properly.

---

1. Independent Service is not configured on all jobs.

## Installation

### Ride and Performance

Run the car to all stops:

- Verify car call assignments
- Check for overshoot
- Verify door operation at all floors
- Check for proper ride quality.

### Recheck

Recheck the operation of the following on Passenger operation:

- Doors
- Car calls
- Hall calls
- PIs
- Gongs and Lanterns
- Photo eye
- Safety edge
- Door open button

### Options

Verify the operation of the following options: Independent Service, Fire Return Phase 1 (Main Floor and Alternate Floor operation, if provided), Fire Phase II In-Car operation, and any other options provided.

### Hydraulic Auxiliary Power Supply

The Hydraulic Auxiliary Power Supply (HAPS) is a backup power supply for hydraulic elevators. HAPS monitors commercial power provided to a hydraulic elevator controller. If commercial power fails, the auxiliary power supply provides single phase backup power, directs the controller to lower the car safely to a landing, and provides power to open the elevator doors. The HAPS unit will then disconnect power to the elevator controller after a customer defined time period. When commercial power is restored, HAPS will direct commercial power to the elevator controller and automatically recharge the batteries for future use. Periodic maintenance and/or replacement of batteries is required depending upon frequency of use, typically in the range of three to five years. Please refer to the HAPS manual shipped with the unit. (HAPS is optional.)

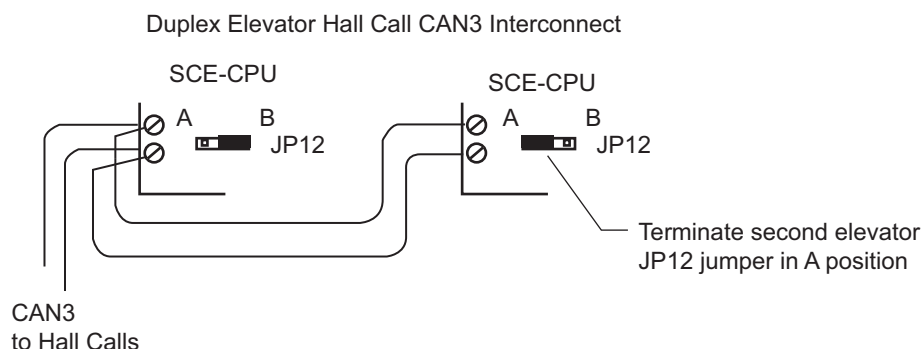
## Duplex Operation

For duplex operation, serial hall calls are connected to both cars as shown in the job prints. One car is selected to be the master dispatcher; the other is selected to be a local.

1. For the car selected as the Dispatcher, set CONFIG 02, System Control Parameters, Primary Dispatcher to YES.
2. For the other car, set Primary Dispatcher to NO.

## Interconnect

Make all connections as shown in the prints for the job.



## Power Phasing

When cars are paired for duplex operation, input power phasing to the two must match.

1. Connect a multimeter, set for AC voltage, between a 2 Bus terminal on one controller and a 2 Bus terminal on the second controller. If the meter reads close to zero (0) volts, the two are in phase. If not:
  - Swap two of the L1/L2/L3 inputs on one car and repeat step 1.

## Installation

### Final Testing, LS-EDGE Only

This instruction provides a way to test the independent slowdown means at terminal stops in an Element hydraulic installation equipped with the LS-EDGE landing system. Three methods of detecting an approaching terminal are provided, (1) Terminal Floor Stepping (Normal Stopping Means), (2) DSL1/USL1 (Terminal Speed Reducing Device) and (3) DSL2/USL2 (Normal Terminal Stopping Device). Activation of one or more of these signals will cause power to be removed from the up or down fast valve solenoid. Testing involves disabling any two of the signals to verify that the third is working.

#### Note

Changes to controller parameters should only be made with the controller on Inspection mode (MACHINE RM INSPECTION - INSP/NORM switch in the INSP position).

### Bottom Terminal Slowdown Limit Tests

#### To test the Normal Stopping Means

Disable DSL1 and DSL2 as follows:

1. Move the car two floors above the bottom terminal floor or to top terminal floor.
2. Place the car on Inspection mode (INSP/NORM switch on SCE-CPU board in the INSP position).
3. Place a jumper between the USL1 and DSL1 input terminals on the SCE-HVI board.
4. On the touch screen, select CONFIG 02 > NTS2 SWITCHES > DSL2 DISTANCE. After recording the current value \_\_\_\_\_, set DSL2 DISTANCE = -6 and SAVE the setting.
5. Place the car in NORM mode and use UTILS > REGISTER CALLS to place a call to the bottom terminal floor.
6. Monitor the car and verify that it slows near the bottom terminal floor due to the Normal Stopping Means, then displays an error message regarding the DSL1 position (Note: The car may move to another floor).

#### To test the Terminal Speed Reducing Device

Disable Terminal Floor Stepping and DSL2 as follows:

7. Move the car two floors above the bottom terminal floor or to top terminal floor.
8. Place the car on Inspection mode.
9. Remove the jumper between the USL1 and DSL1 input terminals on the SCE-HVI board.
10. On the touch screen, select CONFIG 02 > HOISTWAY SETUP > FLOOR STEP DOWN nn (nn = bottom floor served by this car). After recording the current value \_\_\_\_\_, set FLOOR STEP DOWN nn = zero (0.0).
11. Verify/set DSL2 DISTANCE = -6 (see step 4 above).
12. Place the car in NORM mode and use UTILS > REGISTER CALLS to place a call to the bottom terminal floor.
13. Monitor the car and verify that it slows near the bottom terminal floor due to the Terminal Speed Reducing Device, displays fault message "DSL1/DSL2 MISMATCH", shuts down and calls cannot be entered.
14. Reset the fault by placing a jumper between USL1 and DSL1 on the SCE-HVI board. The car may move to another floor.

**To test the Normal Terminal Stopping Device**      Disable Terminal Floor Stepping and DSL1 as follows:

15. Verify jumper placed between USL1 and DSL1 on the SCE-HVI board.
16. Move the car two floors above the bottom terminal floor or to the top terminal floor.
17. Place the car on Inspection mode.
18. On the touch screen, select CONFIG 02 > NTS2 SWITCHES > DSL2 DISTANCE. Set the value of DSL2 DISTANCE to the setting recorded in step 4 above.
19. Verify/set FLOOR STEP DOWN nn = zero (0.0) (see step 10 above).
20. Place the car in NORM mode and use UTILS > REGISTER CALLS to place a call to the bottom terminal floor.
21. Monitor the car and verify that it slows near the bottom terminal floor due to the Normal Terminal Stopping Device, and displays fault messages regarding DSL1 and DSL2 position and shuts down.

## Restore Original Settings

22. Place the car on Inspection mode.
23. Remove the jumper between the USL1 and DSL1 input terminals on the SCE-HVI board, if present.
24. On the touch screen, select CONFIG 02 > NTS2 SWITCHES > DSL2 DISTANCE. Verify/set the value of DSL2 DISTANCE to the setting recorded in step 4 above and SAVE the setting.
25. On the touch screen, select CONFIG 02 > HOISTWAY SETUP > FLOOR STEP DOWN nn. Verify/set the value of FLOOR STEP DOWN nn to the setting recorded in step 10 above and SAVE the setting.

## Top Terminal Slowdown Limit Tests

**To test the Normal Stopping Means**      Disable USL1 and USL2 as follows:

1. Move the car two floors below the top terminal floor or to the bottom terminal floor.
2. Place the car on Inspection mode.
3. Place a jumper between the USL1 and DSL1 input terminals on the SCE-HVI board.
4. On the touch screen, select CONFIG 02 > NTS2 SWITCHES > USL2 DISTANCE. After recording the current value \_\_\_\_\_, set USL2 DISTANCE = -6 and SAVE the setting.
5. Place the car in NORM mode and use UTILS > REGISTER CALLS to place a call to the top terminal floor.
6. Monitor the car and verify that it slows near the top terminal floor due to the Normal Stopping Means, displays the fault message "USL1 POSITION HIGH". The car may move to a floor below the top landing.

## Installation

**To test the Terminal Speed Reducing Device**      Disable Terminal Floor Stepping and USL2 as follows:

7. Move the car two floors below the top terminal floor or to the bottom terminal floor.
8. Place the car on Inspection mode.
9. Remove the jumper between the DSL1 and USL1 input terminals on the SCE-HVI board.
10. On the touch screen, select CONFIG 02 > HOISTWAY SETUP > FLOOR STEP UP nn (nn = top floor). After recording the current value \_\_\_\_\_, set FLOOR STEP UP nn = zero (0.0).
11. Verify/set USL2 DISTANCE = -6 (see step 4 above).
12. Place the car in NORM mode and use UTILS > REGISTER CALLS to place a call to the top terminal floor.
13. Monitor the car and verify that it slows near the top terminal floor due to the Terminal Speed Reducing Device, displays fault message “USL1/USL2 MISMATCH” and the car shuts down and won’t take calls.
14. To reset the fault, place a jumper between USL1 and DSL1 on the SCE-HVI board. The car may move to a floor below the top.

**To test the Normal Terminal Stopping Device**      Disable Terminal Floor Stepping and USL1 as follows:

15. Verify jumper placed between USL1 and DSL1 on the SCE-HVI board.
16. Move the car two floors below the top terminal floor or to the bottom terminal floor.
17. Place the car on Inspection mode.
18. On the touch screen, select CONFIG 02 > NTS2 SWITCHES > USL2 DISTANCE. Set the value of USL2 DISTANCE to the setting recorded in step 4 above.
19. Verify/set FLOOR STEP DOWN nn (top floor) = zero (0.0) (see step 10 above).
20. Place the car in NORM mode and use UTILS > REGISTER CALLS to place a call to the top terminal floor.
21. Monitor the car and verify that it slows near the top terminal floor due to the Normal Terminal Stopping Device, the fault messages “USL1 POSITION HIGH” and “USL1/USL2 MISMATCH” are displayed and the car shuts down.

## Restore Original Settings

22. Place the car on Inspection mode.
23. Remove the jumper between the DSL1 and USL1 input terminals on the SCE-HVI board, if present.
24. On the touch screen, select CONFIG 02 > NTS2 SWITCHES > USL2 DISTANCE. Verify/set the value of USL2 DISTANCE to the setting recorded in step 4 above and SAVE the setting.
25. On the touch screen, select CONFIG 02 > HOISTWAY SETUP > FLOOR STEP UP nn (nn = top floor). Verify/set the value of FLOOR STEP UP nn (top floor) to the setting recorded in step 10 above and SAVE the setting.



## Stop Ring Test

This procedure allows the car to be moved up against the stop ring for testing purposes.



### Note

\*For software versions 001.000.018 and earlier, omit steps 9, 10, 15 and 16.

1. Place the controller on Test Mode (TEST/PRETEST switch in the TEST position).
2. Register a car call to the top landing using the touchscreen.
3. Once the car arrives at the top landing, place the controller on Machine Room Inspection (MACHINE RM INSPECTION INSP/NORM switch in the INSP position).
4. Turn off test mode (TEST/PRETEST switch in the centered position).
5. Remove power to the controller at the main disconnect.
6. Disconnect the wire connected to the UTL terminal on the SCE-HVI board.
7. Place a jumper wire between the DTL and UTL terminals on the SC-HVI board.
8. Restore power to the controller at the main disconnect.
9. \*On the touchscreen, select CONFIG 02 > HOISTWAY SETUP > U/DTL LIMIT OPT and change the value to PHYSICAL.
10. \*Press SAVE on the touchscreen.
11. At this point the car may be moved up against the stop ring using the MACHINE RM INSPECTION UP/DN switch for testing purposes.
12. Once the testing is completed, move the car back down to the top floor and remove power to the controller at the main disconnect.
13. Remove the wire jumper between DTL and UTL and reconnect the disconnected UTL wire on the SCE-HVI board.
14. Restore power to the controller at the main disconnect.
15. \*On the touchscreen, select CONFIG 02 > HOISTWAY SETUP > U/DTL LIMIT OPT and change the value to VIRTUAL.
16. \*Press SAVE on the touchscreen.
17. Take the controller off of Machine Room Inspection (MACHINE RM INSPECTION INSP/NORM switch in the NORM position).

## Low Oil Condition Testing

These procedures simulate a low oil condition for testing purposes.

**Low Oil Switch in use** If there is a low oil switch being used, perform the following:

1. Check the job prints to verify the polarity of the switch and the input to which it is wired.
2. For an active low switch, remove the wire to the input.
3. For an active high switch, wire a jumper from the switch common to the input terminal.
4. Observe that the car will lower to the bottom (or recall) floor and cycle its doors



## Installation

**No Low Oil Switch in use** If there is no low oil switch in use, perform the following:

1. On the touch screen select CONFIG 1 > SYSTEM TIMERS > MOTOR/VALVE TIME LIMIT. After recording the current setting, set the time for 1 minute and press SAVE.
2. With the car at any floor other than the top terminal landing, power down the controller.
3. Remove the UP FAST valve coil wire from the controller terminal UFE/PM (SCE-HVI board) and cap the wire.
4. Wire a test light bulb as a dummy load between terminals UFE/PM and 2LS (SCE-HVI Board) that would provide a similar load as the UP FAST valve coil (e.g., a 120VAC, 100W bulb).
5. Restore power to the controller.
6. Enter a call for an upper floor. Observe that the car will only move in the up direction at leveling speed, and that after 1 minute has elapsed, the car will lower to the bottom (or recall) floor and cycle its doors.
7. Power down the controller; remove the light bulb from the circuit and restore the UP FAST valve coil wire to controller terminals UFE/PM (SCE-HVI Board), as originally wired.
8. Restore power to the controller and, restore the MOTOR/VALVE TIME LIMIT parameter to the time recorded in step 1, if necessary.

## Passcode (Restricted Mode)

(If applicable.) Until a valid passcode is entered and saved, the controller will not answer hall calls. If a valid passcode has not been obtained and entered for the job:

1. Contact MCE Customer Service to obtain a passcode.
2. In the touch screen CONFIG 01 > JOB INFO AND LABELS, you will see:
  - PASSCODE: PASSCODE ACTIVE
3. Press PASSCODE ACTIVE to open an entry screen.
4. Key in the passcode. Press ENTER.
5. The CONFIG 01 screen will display "PASSCODE VALID." Press SAVE.
6. The display will change to:
  - PASSCODE: PASSCODE CLEAR
7. The controller will now respond to hall calls.
8. If the screen rejects the passcode entered:
  - Go to the **SPA DIAG** screen and select the **SPA NUMERIC** tile.
  - Scroll down to addresses **#0080** through **#0083**.
  - Write down the data displayed for all four passcode keys in the form of 8 numbers and letters each.
  - Contact MCE Technical Support to receive the correct passcode based on these encrypted keys.

Until the passcode is cleared, a status message: RESTRICTED MODE on the HOME screen will alert you to the need.

## Backup the Parameter Settings

Once the controller is running properly and parameter settings have been adjusted for proper operation, copy (backup) the parameter settings to a USB drive:

1. Insert the USB drive in the USB connector on the SCE-CPU board.
2. On the touch screen, navigate to the Utilities screen.
3. Select File Transfer.

Select Export Current Settings to USB Drive. Follow on-screen instructions.

---

## Installation



## **In this Section**

This section contains descriptions of Element parameters, web access instructions, and troubleshooting information:

- Using the Touch Screen, [page 2-2](#)
- Menu Tree, [page 2-4](#)
- Screen Descriptions, [page 2-5](#)
- Spare Inputs, [page 2-16](#)
- Spare Outputs, [page 2-17](#)
- Acronyms, [page 2-19](#)
- Web Browser Access, [page 2-24](#)
- USB Parameter Transfer, [page 2-25](#)
- Event Log Archive/e-mail, [page 2-26](#)
- Troubleshooting, [page 2-27](#)
- Board Descriptions, [page 2-30](#)
- System Software Update, [page 2-38](#).
- Event Descriptions, [page 2-48](#)
- Event Log Viewing, [page 2-82](#)



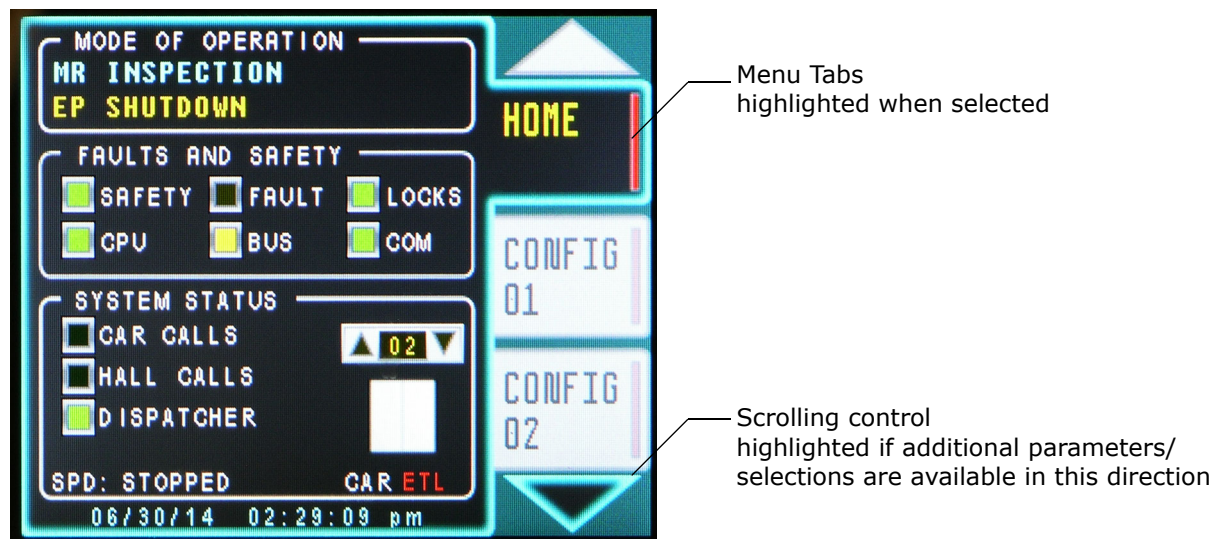
## Configuration and Troubleshooting

### Using the Touch Screen

Element controls use a touchscreen user interface (OBD). The initial (and default) display is the Home Display. See “Home Screen” on page 1- 11. Screens are arranged in “order of use” with the Home screen first, followed by configuration screens, utility screens, and then diagnostics oriented screens.

### Home

Figure 2.1 Home Display Screen (OBD)



On the Home display screen, “tabs” to the right of the window show what additional adjustment, control, and diagnostic screens are available. Up and Down arrows scroll through the tabs. To access a screen, simply touch the associated tab.

- When activated, main screens with many selections open to a sub-screen selection menu.
- To select/set a particular feature, simply touch it.
  - If Yes/No, it will change from one state to the other.
  - If there are more than two possible settings, a list will appear.
  - If a time or value may be set, a numeric entry screen will open.
- The Save button allows you to save changes. (Save and Exit.)
- The Exit button allows you to exit the screen. Any unsaved changes will be ignored.
- Undo: Undo action but remain in menu.

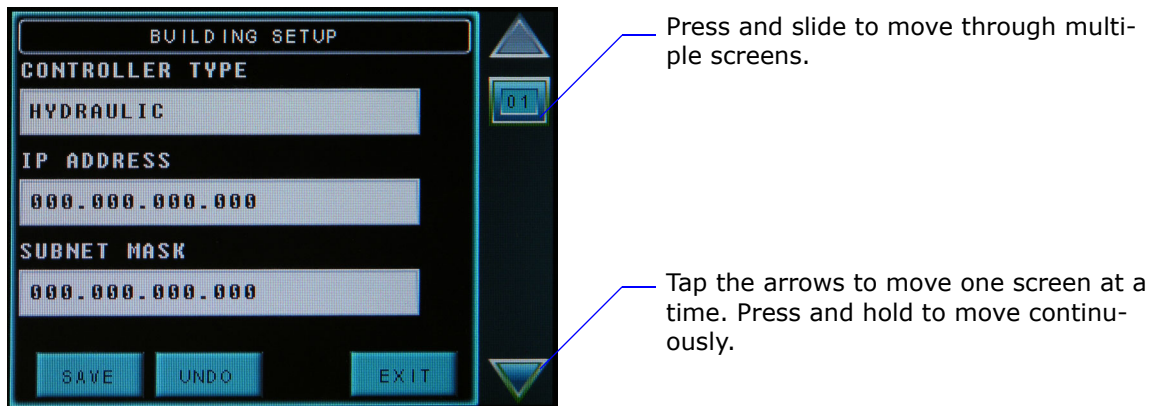
We recommend you take a few minutes to become familiar with the touch screen interface. You will find that operation is simple and predictable. See additional screen representations on the next page.

#### Note

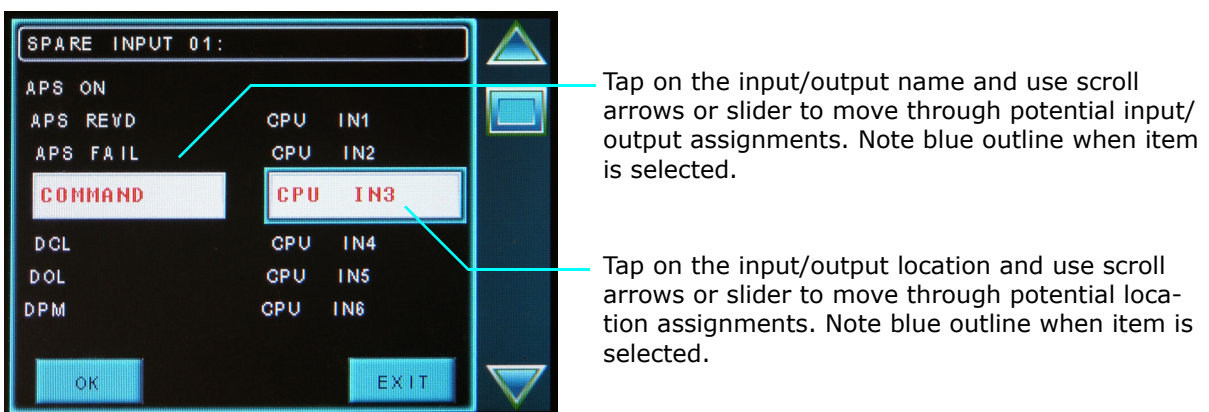
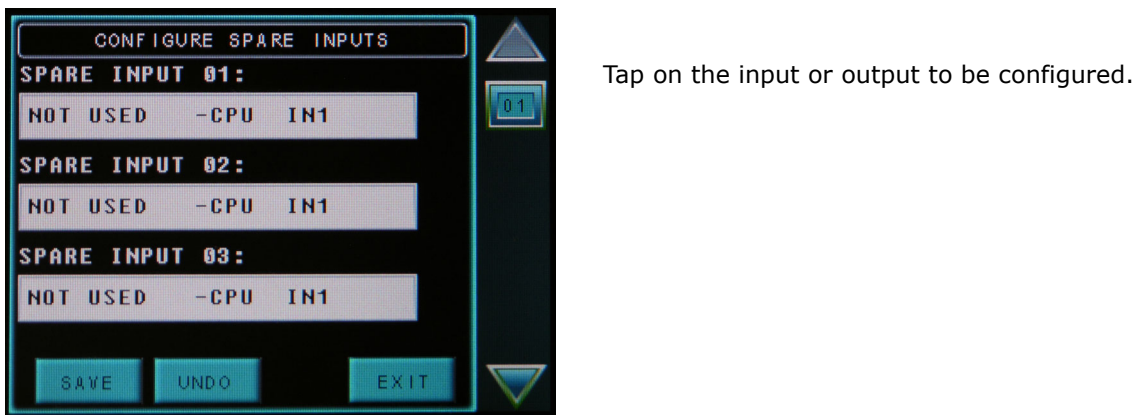
Screen freeze: If the screen should ever freeze or “lock up,” press RSTA on the SCE-CPU board.



**Figure 2.2 Parameter Selection Screen**



**Figure 2.3 Input/Output Assignment**



To reassign an already used input:

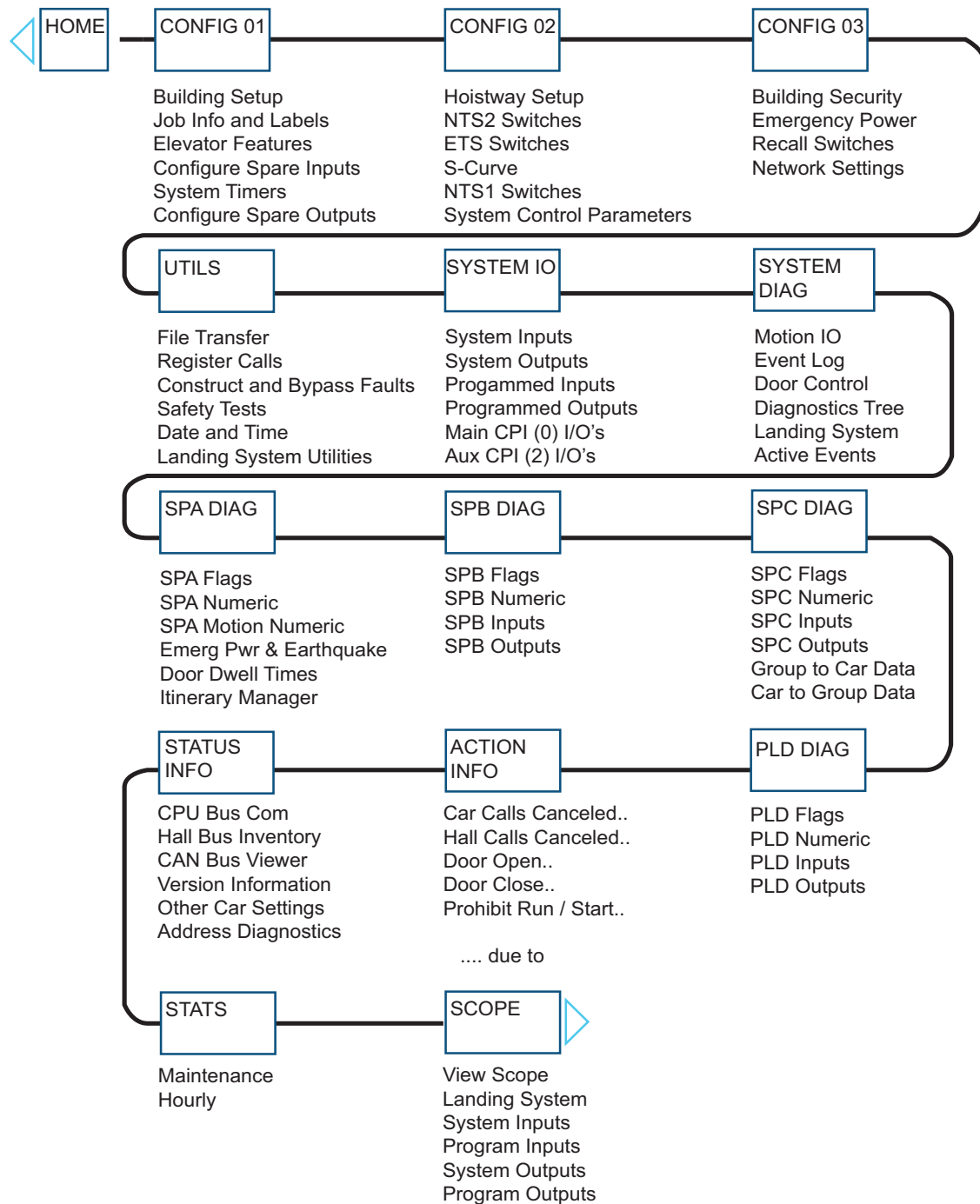
- Reassign input to NOT USED.
- Assign the new function, press OK.
- Press Save.





## Configuration and Troubleshooting

**Figure 2.4 Menu Tree**



## Shortcuts

- Touch the elevator on the Home screen to go to call registration.
- Touch the upper left corner on the Register Calls screen to return to the Home screen.
- Touch inside the Mode of Operation, Faults & Safety, or System Status areas of the Home screen to go to a screen relevant to obtaining additional information.
- Touch the home icon in upper left corner to return to the Home screen.

## Screen Descriptions

Experiment with the touchscreen to familiarize yourself with navigation and content. If an abbreviation is not clear, please see [Acronym Descriptions and Memory Locations on page 2-19](#).

**Table 2.1 Touchscreen Organization and Content**

| Tab                                                                                 | Subtab                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | N/A<br>See "Home Screen" on page 1- 11. | Displays critical status information for operation. <ul style="list-style-type: none"> <li>- Operating Mode</li> <li>- Fault text if a fault is active</li> <li>- Safety string complete indicator</li> <li>- Active fault indicator</li> <li>- Locks string complete indicator</li> <li>- CPU health indicator</li> <li>- Bus status</li> <li>- System communication</li> <li>- Clock and date display</li> <li>- Car and Hall call in service status</li> <li>- Dispatcher (on dispatched car "Disp ID: nn" will appear where "nn" is the ID of the dispatching car, Duplex only) Simplex will appear for a single self-dispatching car.</li> <li>- Car door position</li> <li>- Current floor</li> <li>- Intended direction of travel</li> <li>- Destination floor</li> </ul>                                                                                                                                                                                                                                                                                                                 |
|  | <b>Building Setup</b>                   | <ul style="list-style-type: none"> <li>- Controller Type, Hydraulic/Traction</li> <li>- Number of Cars (1 Simplex, 2 Duplex)</li> <li>- Car ID</li> <li>- Bottom Floor (served)</li> <li>- Top Floor (served)</li> <li>- Floor Openings (per floor, Front/None)</li> <li>- Lobby Floor</li> <li>- Egress Floor (building exit floor)</li> <li>- Safety Code (Elevator Safety Code) (<a href="#">page 1-5</a>)</li> <li>- Flash Fire Hat (MR/HSTWY)</li> <li>- Main Fire Floor</li> <li>- Alt Fire Floor</li> <li>- Flood Floor (lowest served if Flood input active)</li> <li>- Landing System Type, LS-EDGE or LS-QUTE</li> <li>- Primary Parking Floor</li> <li>- Primary Parking Door Operation</li> <li>- Secondary Parking Floor</li> <li>- Secondary Parking Door Operation</li> <li>- Car Panel Inspection: When present (Yes), SCE-CPU inputs ICEN/IN1, ICPU/IN2, and ICPD/IN3 may only be used as Car Panel Inspection inputs.</li> <li>- Hoistway Access: Top, Bottom, or Both.</li> <li>- EMS Floor: Set the floor number at which the EMS call to floor input is located.</li> </ul> |
|                                                                                     | <b>Job Info and Labels</b>              | <ul style="list-style-type: none"> <li>- Passcode. See <a href="#">Passcode (Restricted Mode) on page 1-58</a>.</li> <li>- SCE CPU Serial Number (Read Only)</li> <li>- Job Department and Year</li> <li>- Job Number</li> <li>- Job Name</li> <li>- Car Label</li> <li>- Floor Label, per floor</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |



## Configuration and Troubleshooting

**Table 2.1 Touchscreen Organization and Content**

| Tab                                                                               | Subtab                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Elevator Features</b> | <ul style="list-style-type: none"> <li>- Capture Floor (Pretest Operation calls car to this floor). See Capture for Test, <a href="#">page 1-8</a>.</li> <li>- Capture Door Operation (Doors Closed/Open Doors/Cycle Doors): Door action behavior at capture floor.</li> <li>- Bypass Stuck PHE (Yes/No): When enabled, causes controller to ignore PHE (Photo Eye) input and close the doors after the Stuck PHE Timer elapses.</li> <li>- Bypass Stuck SE (Yes/No): When enabled, causes controller to ignore SE (Safety Edge) input and close the doors after the Stuck SE elapses.</li> <li>- Bypass Stuck DOB (Yes/No): When enabled, causes controller to ignore DOB (Door Open Button) input and close doors after the Stuck DOB or TOS timer elapses.</li> <li>- PHE Antinuisance (Photo Eye Antinuisance - 00 - 10)<br/>Maximum number of car calls served without photo eye interruption before all car calls are canceled.</li> <li>- LLI Antinuisance (Light Load Antinuisance - 00 - 10)<br/>Maximum number of car calls registered with load light input active.</li> <li>- CCC Reversal (Yes/No)<br/>If Yes, cancel any car calls in the previous direction when the car reverses direction.</li> <li>- CCC Behind Car (Yes/No)<br/>If Yes, cancel all car calls entered in the opposite direction of current or upcoming direction of travel.</li> <li>- Pre-Open Doors (Yes/No)<br/>If yes, doors will begin pre-opening when car is within three inches of the destination door zone.</li> <li>- Nudging (Yes/No)<br/>If Yes, enables nudging operation when doors are prevented from closing.</li> <li>- DLK Direction Preference (Yes/No)<br/>If Yes, car maintains present direction preference until doors closed and locked. If No, car maintains direction preference only until door dwell time expires.</li> <li>- Double Ding Down (Yes/No)<br/>Causes lanterns and gongs to double-strike if car direction preference is down.</li> <li>- DCB Cancels CCT (Yes/No)<br/>If Yes, pressing the Door Close Button cancels the active car call door timer and begins closing doors immediately.</li> <li>- DCB Cancels HCT (Yes/No)<br/>If Yes, pressing the Door Close button cancels the active hall call door timer and begins closing doors immediately.</li> <li>- DCB Cancels LOT (Yes/No)<br/>If Yes, pressing the Door Close button cancels the lobby dwell timer and begins closing the doors immediately.</li> <li>- EMERGDISP CYCLES (Emergency Dispatch Cycles 01-10)<br/>The number of full cycles between emergency dispatch pauses. The default value is 1.</li> </ul> |
|                                                                                   |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

**Table 2.1 Touchscreen Organization and Content**

| Tab                                                                               | Subtab                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Elevator Features</b> | <ul style="list-style-type: none"> <li>-EMERGDISP HOLD TIMER (Default 0 seconds) During emergency dispatch operation, the car will pause for this amount of time after completing the number of user defined emergency dispatch cycles. The timer is reset if the car starts to move to park or answer COP car calls.</li> <li>- PHE Cancels CCT (Yes/No)<br/>If Yes, photo eye activation cancels the active car call dwell timer.</li> <li>- PHE Cancels HCT (Yes/No)<br/>If Yes, photo eye activation cancels the active hall call</li> <li>- PHE Cancels LOT (Yes/No)<br/>If Yes, photo eye activation will cancel the lobby door dwell timer.</li> <li>- CCB Cancels CCT (Yes/No)<br/>If Yes, pressing a car call button while the doors are open will cancel normal car call door dwell time and cause the doors to begin closing.</li> <li>- CCB Cancels HCT (Yes/No)<br/>If Yes, pressing a car call button cancels the active hall call dwell timer and begin closing doors immediately.</li> <li>- CCB Cancels LOT (Yes/No)<br/>If Yes, pressing a car call button will cancel the lobby door dwell timer and begin closing doors immediately.</li> <li>- Stuck Insp Input (TSSA) (Yes/No): If Yes, and if any inspection direction or enable inputs remain high for more than one second during passenger operation, or during inspection operation, if any combination of inspection inputs remain high for more than five seconds, except for Enable plus Up (e.g., ICEN + ICPU) and Enable plus Down (e.g., ICEN + ICPD), a stuck inspection button fault will be generated.</li> <li>- Idle Door Open (Yes/No): If Yes, the car will open its doors when Idle or Parked at a floor.</li> <li>- Latch Door Open (Yes/No): If Yes, keeps the Door Open Function (DOF) on when doors are open.</li> <li>- Latch Door Close (Yes/No): If Yes, keeps the Door Close Function (DCF) on when doors are closed.</li> <li>- Door Contact FLT Enabled (Yes/No): When enabled, the car gate and hoistway door contacts are monitored, when the doors are fully open at a floor, to detect any jumpered contacts that would result in a mismatch or unexpected door signals. When this occurs, a fault is generated, the car is shut down and the door close button rendered inoperative as long as the fault is present (per applicable elevator code). When disabled, the fault is logged but otherwise ignored.</li> <li>- CPClose Bypass PHE (Yes/No): Set to Yes for the photo eye to be bypassed during constant pressure close operation. (This option does not apply to Fire Phase II.)</li> <li>- Resynchronization Days (Sunday through Saturday):<br/>Day(s) on which resynchronization is to be performed.<br/>Note: Set day of the week (UTILS &gt; DATE AND TIME)</li> <li>- Resynchronization Time (Hour: Minute AM/PM): Time at which resynchronization is to be performed.</li> </ul> |



## Configuration and Troubleshooting

**Table 2.1 Touchscreen Organization and Content**

| Tab                                                                               | Subtab                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Configure Spare Inputs</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Allows input signals to be assigned to available spare inputs. Maximum 30. See <a href="#">Spare Inputs on page 2-16</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                   | <b>Configure Spare Outputs</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Allows output signals to be assigned to available spare outputs. Maximum 20. See <a href="#">Spare Outputs on page 2-17</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                   | <b>Input/Output Assignment</b> <ol style="list-style-type: none"> <li>1. Touch the input you want to configure. An assignment screen will appear.</li> <li>2. Touch and highlight either the input/output you want to assign or the physical connection you want to assign to.</li> <li>2. Change selection by scrolling up or down (scroll bar on the right).</li> <li>3. When desired Inputs/Outputs and desired physical connections are aligned, press OK to return to the configure screen. Press Save to save changes.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                   | <b>System Timers</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>- Motor/Valve Time Limit (Default 3 minutes)<br/>Starts when the controller attempts to move the car in the up direction and resets when the car reaches its destination floor. If the timer expires before the car reaches its destination, the controller stops trying to move the car up to protect the motor. The car will then lower to the bottom floor and shut down.</li> <li>- Open Limit Time (Default 10 seconds)<br/>Determines how long the door operator should attempt to open the doors before declaring an unsuccessful attempt (Door Open Fail 1 - 3). After 3 unsuccessful attempts, a Door Open Fault will be declared. This action protects the door motor.</li> <li>- Close Limit Time (Default 10 seconds)<br/>Determines how long the door operator should attempt to close the doors before declaring an unsuccessful attempt (Door Close Fail 1 - 3). After 3 unsuccessful attempts, a Door Close Fault will be generated, followed by a Door Fault Shutdown. This action protects the door motor.</li> <li>- Door Interlock Timer (Default 100 mS)<br/>Introduces a delay when closing or opening doors are abruptly reversed. This may be required if the door operator is sensitive to such reversal due to debounce capability. Set to 0.0 if not required.</li> <li>- Short Door Timer (Default 1 second)<br/>Length of time doors will remain open after being reopened by photo eye, safety edge, or door open button.</li> <li>- Car Call Timer (Default 2 seconds)<br/>Length of time doors will remain open to service a car call.</li> <li>- Hall Call Timer (Default 4 seconds)<br/>Length of time doors will remain open to service a hall call.</li> <li>- Lobby Call Timer (Default 6 seconds)<br/>Length of time doors will remain open to service a lobby call.</li> <li>- ADA Car Timer (Default 3 seconds)<br/>Length of time doors will remain open to service an ADA car call.</li> <li>- ADA Hall Timer (Default 5 seconds)<br/>Length of time doors will remain open to service an ADA hall call.</li> </ul> |

**Table 2.1 Touchscreen Organization and Content**

| Tab                                                                               | Subtab               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>System Timers</b> | <ul style="list-style-type: none"> <li>- Stuck PHE Timer (Default 10 seconds)<br/>Length of time the photo eye is allowed to delay closing before it is bypassed and the doors begin to close.</li> <li>- Stuck SE Timer (Default 20 seconds)<br/>Length of time the safety edge is allowed to delay closing before it is bypassed and the doors begin to close.</li> <li>- Stuck DOB Timer (Default 10 seconds)<br/>Length of time the door open button is allowed to delay closing before it is bypassed and the doors begin to close.</li> <li>- Car Delayed Timer (Default 30 seconds)<br/>Removes the car from hall call demand if delayed beyond the timer setting.</li> <li>- COS Timer (Default 5 minutes)<br/>If the car delayed condition persists for the amount of time set here, the car will be removed from service for all calls.</li> <li>- FLO Timer (Default 5 minutes)<br/>When a car is inactive for this amount of time, the fan and light will automatically be turned off.</li> <li>- Door Hold Timer (Default 20 seconds)<br/>Time to hold the doors open for a momentary activation of the Door Hold input (button).</li> <li>- Parking Timer (Default 2 seconds)<br/>If a car is idle in excess of the time set here, it will move to its designated parking floor.</li> <li>- Sleep Mode Timer (Default 10 minutes)<br/>The touch screen will enter sleep mode when this timer expires if there has been no activity.</li> </ul> |



## Configuration and Troubleshooting

**Table 2.1 Touchscreen Organization and Content**

| Tab                                                                               | Subtab                           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Hoistway Setup</b>            | <p>LS-EDGE landing system only. Floor heights are set during hoistway learn operation but may be adjusted here to compensate for floor level magnet position imperfections.</p> <ul style="list-style-type: none"> <li>- Floor Height (n): Level at floor height in inches for each landing.</li> <li>- Floor Offset (n): "Moves" the floor up or down (negative entries) to adjust the elevator level position.</li> <li>- Floor Step Up (n): Sets the distance from floor level at which the virtual stepping magnets will force high speed to drop when the elevator is running up to that floor.</li> <li>- Floor Step Down (n): Sets the distance from floor level at which the virtual stepping magnets will force high speed to drop when the elevator is running down to that floor. See <a href="#">page 1-34</a>.</li> <li>- Landing System ID: Automatically entered during hoistway learn operation. Forces a new learn if the landing system software or hardware is changed.</li> <li>- Top Access Distance: Sets the location of the "top access switch" that limits downward travel to a point at which the crosshead is level with the sill when accessing the car top.</li> <li>- Bottom Access Distance: Sets the location of the "bottom access switch" that limits upward travel to a point at which the bottom of the apron is even with the hoistway entrance header.</li> </ul> |
|                                                                                   | <b>NTS2 Switches</b>             | <ul style="list-style-type: none"> <li>- USL2 Distance: Programmed distance at which the virtual USL2 switch is positioned from terminal floor level. Distance should be set to the same value as Floor Step Up (top floor) distance.</li> <li>- DSL2 Distance: Programmed distance at which the virtual DSL2 switch is positioned from terminal floor level. Distance should be set to the same value as Floor Step Down 1 distance.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                   | <b>ETS Switches</b>              | Traction only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                   | <b>S-Curve</b>                   | Traction only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                   | <b>NTS1 Switches</b>             | Traction only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                   | <b>System Control Parameters</b> | <ul style="list-style-type: none"> <li>- Primary Dispatcher: Yes if car is Simplex or is the dispatching car for Duplex operation. No if car is second/local car in duplex pair.</li> <li>- Contract Speed: Set to contract speed for car.</li> <li>- Relevel Distance: After initial leveling into the floor, defines the distance on either side of level which the car can drift before releveling is activated. Must always be greater than Dead Zone Distance.</li> <li>- Dead Zone Distance: Defines the distance on either side of exact level at which the stop command is issued to coast into the floor. Start with 0.5 inches.</li> <li>- Starter (Siemens or Sprecher and Schuh)</li> <li>- Valve Type (standard or TKE/Dover)</li> <li>- Slow Inspection Speed: Shall the car always run at slow valve speed during inspection?</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |



**Table 2.1 Touchscreen Organization and Content**

| Tab                                                                               | Subtab                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |                          | <ul style="list-style-type: none"> <li>- Soft Stop Delay, When set, if the start contact signal is removed, the starter will continue to operate normally for this additional time to allow a hydraulic valve to close before motor shutdown. After timer expires, the starter will shut down normally. Set to 0.0 to disable.</li> <li>- Up to Speed Delay, set the amount of time that the controller will wait to allow the motor to accelerate to nominal speed. Set to 0.0 to disable. Max is 15 seconds.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|  | <b>Building Security</b> | <ul style="list-style-type: none"> <li>- Security Enabled: If Yes, enables car call security. Valid credential must be recognized by security system and Car Call Enable signal issued to controller before call may be registered.</li> <li>- CC Enable Active Off: If Yes, car call enable signal from security system is valid in low state. If No, signal from security system is valid in high state.</li> <li>- Enable DOB on Security: If yes, the Door Open Button is functional at a secured floor.</li> <li>- Ind Overrides Security: If yes, Independent operation overrides security.</li> <li>- Remote Calls Override Security: If yes, remote calls override security.</li> <li>- Park At Secured Floor: If yes, the car is allowed to park at a secured floor.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                   | <b>Emergency Power</b>   | <ul style="list-style-type: none"> <li>- Emergency Power Type: <ul style="list-style-type: none"> <li>None: No emergency power available.</li> </ul> </li> <li>- Dispatcher: Emergency recall and run determined by dispatcher.</li> <li>- Overlay: Emergency recall and run determined through discrete I/O by emergency power overlay system.</li> <li>- Cars to Run on EP: Number of cars able to run on emergency power Phase 2 (Run Phase).</li> <li>- Pref Car to Run on EP2: Select car to run on emergency power (Last recalled, Car ID1, Car ID2).</li> <li>- Bypass EP Sequencing: When set to Yes, emergency power recall and select to run phases are bypassed and the maximum number of cars are selected to run on generator power without need of an EP selection switch.</li> <li>- EP Recall Floor: Floor to which cars will recall on emergency power.</li> <li>- EP Recall Timeout: Seconds dispatcher should attempt to recall non-responsive car before passing it by.</li> <li>- EP Door Operation: <ul style="list-style-type: none"> <li>Open Doors: Doors open at recall floor. Default.</li> <li>Cycle Doors: Door will cycle open and then close at recall floor.</li> </ul> </li> </ul> |



## Configuration and Troubleshooting

**Table 2.1 Touchscreen Organization and Content**

| Tab                                                                               | Subtab                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Recall Switches</b>  | <p>Element provides four car recall inputs, Recall S1 - S4.</p> <ul style="list-style-type: none"> <li>- Latch Switch (Seconds): At recall floor, car will wait for this period of time for an initiating action to be taken (i.e., independent control initiated, access operation initiated, etc.) before automatically returning to normal passenger service.</li> <li>- Recall Floor: Set to desired recall floor.</li> <li>- Override Security (Yes/No): If Yes, the recall operation will override security settings for the floor.</li> <li>- Car Calls Disposition: How should registered car calls be handled before the car recalls? (Cancel Calls/Answer Calls/Allow New Calls/Cancel Calls at Next Stop)</li> <li>- Door Operation (Cycle Doors/Doors Closed/Doors Open): Determines door action on arrival at recall floor.</li> <li>- Override Independent (Yes/No): If Yes, recall operation will override Independent service.</li> </ul> |
|                                                                                   | <b>Network Settings</b> | <ul style="list-style-type: none"> <li>- IP Address: IP address of car on LAN.</li> <li>- Subnet Mask: Subnet mask of car on LAN.</li> <li>- Default Gateway: Default gateway of car on LAN.</li> <li>- MAC Address</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

**Table 2.1 Touchscreen Organization and Content**

| Tab                                                                                 | Subtab                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>File Transfer</b>               | <p>Allows parameters to be restored:</p> <ul style="list-style-type: none"> <li>- Backup Current Settings (to SD)</li> <li>- Restore Backup Settings (from SD)</li> <li>- Restore Factory Settings (from SD)</li> </ul> <p>When option is selected, you are prompted to press OK to continue or EXIT to abort without changing defaults.</p> <p>Allows parameters to be transferred:</p> <ul style="list-style-type: none"> <li>- Export Current Settings to USB Drive</li> <li>- Import &amp; Apply Settings from USB Drive</li> <li>- Export Events to USB Drive</li> </ul>                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                     | <b>Register Calls</b>              | On-board Car and Hall call registration controls.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                     | <b>Construct and Bypass Faults</b> | <ul style="list-style-type: none"> <li>- Construction/Fault Bypass</li> </ul> <p>When active, enables Construction operation, bypasses faults. Also requires that the Fault Bypass jumper on the SCE-CPU board be set to BYPASS and the car be placed on Inspection mode.</p> <ul style="list-style-type: none"> <li>- Inspection Fault Bypass</li> </ul> <p>When active, bypasses faults on Inspection operation. Also requires that the Fault Bypass jumper on the SCE-CPU board be set to BYPASS.</p> <ul style="list-style-type: none"> <li>- Automatic Fault Bypass</li> </ul> <p>Bypasses faults on Passenger operation. Also requires that the Fault Bypass jumper on the SCE-CPU board be set to BYPASS. A countdown timer will appear on the Home screen, counting down from 2 hours. When the timer expires, the car will automatically exit fault bypass operation. If more time is required, must be re-enabled.</p> |
|                                                                                     | <b>Safety Tests</b>                | Commissioning test assistance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                     | <b>Date and Time</b>               | Date, time and day of the week setting controls.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                                     | <b>Landing System Utilities</b>    | <p>Hoistway Learn (Landing System Learn) - Allows you to learn the hoistway, <a href="#">page 1-34</a>. LS-EDGE only.</p> <p>Landing System View - Displays position and speed information at upper and lower leveling markers during floor leveling. Displays on/off status for SDU (Step Down Up), ULM (Up Level Marker), DZ (Door Zone), DLM (Down Level Marker), SDD (Step Down Down). LS EDGE only.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|  | <b>System Inputs</b>               | On/Off status of dedicated inputs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                     | <b>System Outputs</b>              | On/Off status of dedicated outputs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                     | <b>Programmed Inputs</b>           | On/Off status of programmable inputs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                     | <b>Programmed Outputs</b>          | On/Off status of programmable outputs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                     | <b>Main CPI I/Os</b>               | On/Off status of CPI inputs/outputs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                     | <b>Aux CPI I/Os</b>                | On/Off status of CPI inputs/outputs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## Configuration and Troubleshooting

**Table 2.1 Touchscreen Organization and Content**

| Tab                                                                                 | Subtab                           | Description                                                                                                                                                   |
|-------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>Motion IO</b>                 | Groups indicators for the inputs and outputs active during car motion.                                                                                        |
|                                                                                     | <b>Event Log</b>                 | First In, First Out record of the last 200 events, time and date stamped. Colors: Blue = informational; Yellow = fault; Red = Error; Gray = No longer active. |
|                                                                                     | <b>Door Control</b>              | On/Off status of door control inputs/outputs.                                                                                                                 |
|                                                                                     | <b>Diagnostics Tree</b>          | Indicators for selected PLD functions. See <a href="#">page 2-28</a>                                                                                          |
|                                                                                     | <b>Landing System</b>            | On/Off status of landing system inputs/outputs.                                                                                                               |
|                                                                                     | <b>Active Events</b>             | Displays currently active system events.                                                                                                                      |
|    | <b>SPA Flags</b>                 | Indicators for car operation activity.                                                                                                                        |
|                                                                                     | <b>SPA Numeric</b>               | Data register information for factory assisted diagnosis.                                                                                                     |
|                                                                                     | <b>SPA Motion Numeric</b>        | See Note following table, <a href="#">page 2-15</a> .                                                                                                         |
|                                                                                     | <b>Emergency Pwr &amp; EQ</b>    | Indicators related to emergency power and earthquake operation.                                                                                               |
|                                                                                     | <b>Door Dwell Times</b>          | Indicators for active dwell timers.                                                                                                                           |
|                                                                                     | <b>Itinerary Manager</b>         | Indicators for active car operation signals.                                                                                                                  |
|   | <b>SPB Flags</b>                 | Indicators for motion activity.                                                                                                                               |
|                                                                                     | <b>SPB Numeric</b>               | Data register information for factory assisted diagnosis.                                                                                                     |
|                                                                                     | <b>SPB Inputs</b>                | Indicators for motion related inputs                                                                                                                          |
|                                                                                     | <b>SPB Outputs</b>               | Indicators for motion related outputs.                                                                                                                        |
|  | <b>SPC Flags</b>                 | Indicators for USB, Ethernet, and SD card activity.                                                                                                           |
|                                                                                     | <b>SPC Numeric</b>               | Data register information for factory assisted diagnosis.                                                                                                     |
|                                                                                     | <b>SPC Inputs</b>                | Indicators for communications related inputs.                                                                                                                 |
|                                                                                     | <b>SPC Outputs</b>               | Indicators for communications related outputs.                                                                                                                |
|                                                                                     | <b>Group to Car Data</b>         | Group to car data monitoring                                                                                                                                  |
|                                                                                     | <b>Car to Group Data</b>         | Car to group data monitoring                                                                                                                                  |
|  | <b>PLD Flags</b>                 | Indicators for PLD related I/O.                                                                                                                               |
|                                                                                     | <b>PLD Numeric</b>               | Data register info for PLD.                                                                                                                                   |
|                                                                                     | <b>PLD Inputs</b>                | Indicators for PLD related inputs.                                                                                                                            |
|                                                                                     | <b>PLD Outputs</b>               | Indicators for PLD related outputs.                                                                                                                           |
|  | <b>Car Call Canceled Due To</b>  | Conditions affecting car call cancellation and their status.                                                                                                  |
|                                                                                     | <b>Hall Call Canceled Due To</b> | Conditions affecting hall call cancellation and their status.                                                                                                 |
|                                                                                     | <b>Door Open Due To</b>          | Conditions affecting door opening and their status.                                                                                                           |
|                                                                                     | <b>Door Close Due To</b>         | Conditions affecting door closing and their status.                                                                                                           |
|                                                                                     | <b>Prohibit Run/Start Due To</b> | Conditions affecting car running and their status.                                                                                                            |

**Table 2.1 Touchscreen Organization and Content**

| Tab                                                                                 | Subtab                                   | Description                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>CPU Bus Com Status</b>                | Conditions affecting processor communication and their status.                                                                                                                                                                                                                                                                                                           |
|                                                                                     | <b>Hall Bus Inventory</b>                | With all hall calls installed and working, press INVTRY to inventory switches and indicators. After Inventory is run, press TEST to test for switch or indicator problems.                                                                                                                                                                                               |
|                                                                                     | <b>CAN Bus Viewer</b>                    | Allows viewing CAN bus data for SCE-CPU board. Each string provides the ID of the device and eight packets of Hex data bytes. This tool is intended to be used in conjunction with MCE technical support.                                                                                                                                                                |
|                                                                                     | <b>Version Information</b>               | Software version information.                                                                                                                                                                                                                                                                                                                                            |
|                                                                                     | <b>Other Car Settings (display only)</b> | <ul style="list-style-type: none"> <li>- Emergency Power Type 2: As selected.</li> <li>- Car 2 Floor 'nn' Opening: Front/Rear/None per floor served by non-dispatching car of Duplex.</li> <li>- Car 2 Floor Heights: Height in inches per floor served by non-dispatching car of Duplex. Used by the Dispatching car to calculate ETA when making decisions.</li> </ul> |
|                                                                                     | <b>Address Diagnostics</b>               | - Allows you to request selected processor register data via address entry. Technician assisted troubleshooting.                                                                                                                                                                                                                                                         |
|   | <b>Maintenance Statistics</b>            | Power cycles, Resets, Starts, etc.                                                                                                                                                                                                                                                                                                                                       |
|                                                                                     | <b>Hourly Statistics</b>                 | Last 24 hours, per hour statistics for car calls, hall calls, up runs, down runs.                                                                                                                                                                                                                                                                                        |
|  | <b>View Scope</b>                        | Near real time scope with four trace capacity.                                                                                                                                                                                                                                                                                                                           |
|                                                                                     | <b>Landing System Signals</b>            | Select trace signals from landing system.                                                                                                                                                                                                                                                                                                                                |
|                                                                                     | <b>System Inputs</b>                     | Select trace signals from among dedicated inputs.                                                                                                                                                                                                                                                                                                                        |
|                                                                                     | <b>Programmed Inputs</b>                 | Select trace signals from among programmable inputs.                                                                                                                                                                                                                                                                                                                     |
|                                                                                     | <b>System Outputs</b>                    | Select trace signals from among dedicated outputs.                                                                                                                                                                                                                                                                                                                       |
|                                                                                     | <b>Programmed Outputs</b>                | Select trace signals from among programmable outputs.                                                                                                                                                                                                                                                                                                                    |



## SPA Diagnostics/SPA Motion Numeric

The Motion Flags that reference floor numbers are directly readable and require no code reference (as do the flags intended for use with MCE technical support). Numbers are zero-based; zero = one, 1 = 2, etc.

- Target Floor: Displays the floor number of the next intended stop.
- New Target: If new registration assignment changes the Target floor, the new target floor number will appear here momentarily before Target data is updated.
- Next Target: Displays the floor number of the intended stop after the Target floor.
- Start Position: Displays the floor number at which the current run began.
- Current Position: Displays the floor number at which the car is currently stopped.



## Configuration and Troubleshooting

**Table 2.2 Spare Inputs**

| Input      | Description                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NOT USED   | Input is not used                                                                                                                                                                                                                                                                                                                                                                                                                  |
| ALIVE      | Input used in Duplex operation to inform the car that the other car is powered                                                                                                                                                                                                                                                                                                                                                     |
| APS FAIL   | Auxiliary power supply failure (TAPS or HAPS)                                                                                                                                                                                                                                                                                                                                                                                      |
| APS ON     | Auxiliary power supply is on                                                                                                                                                                                                                                                                                                                                                                                                       |
| APS REVD   | Detecting that reversing the direction of the Auxiliary power supply is appropriate                                                                                                                                                                                                                                                                                                                                                |
| CC ENBL1-6 | Car Call Enable Inputs from security system                                                                                                                                                                                                                                                                                                                                                                                        |
| DCB        | Activate this input to close doors                                                                                                                                                                                                                                                                                                                                                                                                 |
| DCL        | This limit switch opens when doors reach closed position                                                                                                                                                                                                                                                                                                                                                                           |
| DLM        | Down level marker                                                                                                                                                                                                                                                                                                                                                                                                                  |
| DOB        | Activate this input to open the doors                                                                                                                                                                                                                                                                                                                                                                                              |
| DOL        | This limit switch opens when the doors are fully open                                                                                                                                                                                                                                                                                                                                                                              |
| DOOR HOLD  | Activate this input to hold the doors open                                                                                                                                                                                                                                                                                                                                                                                         |
| DPM        | Code Mandated limit switch that tells us doors are truly closed                                                                                                                                                                                                                                                                                                                                                                    |
| EMDISP     | Sometimes referred to as Wild Operation, takes over in the event of dispatch failure                                                                                                                                                                                                                                                                                                                                               |
| EMDISP OV  | Input that bypasses Will Operation; when active, car will stay at last call entered, in the event of a dispatcher failure                                                                                                                                                                                                                                                                                                          |
| EMSC SW    | In-car Emergency Service input that transfers car to Phase 2 of emergency service                                                                                                                                                                                                                                                                                                                                                  |
| EMSH SW    | Hallway key switch that activates Phase 1 of emergency service                                                                                                                                                                                                                                                                                                                                                                     |
| EPI        | A normally closed contact that opens to alert controller to presence of Emergency Power                                                                                                                                                                                                                                                                                                                                            |
| EPI-C      | A normally open contact that closes to alert controller to presence of Emergency Power                                                                                                                                                                                                                                                                                                                                             |
| EP AUTO    | When input is active, car to run on emergency power is automatically selected                                                                                                                                                                                                                                                                                                                                                      |
| EP MANUAL  | Use this input to manually select car to run on Emergency power operation                                                                                                                                                                                                                                                                                                                                                          |
| EP OFF     | Normally ON. OFF when commercial power is lost.                                                                                                                                                                                                                                                                                                                                                                                    |
| EQ HSCAN   | Earthquake Hoistway Scan. From a switch inside the elevator cab to initiate hoistway scan (required for A17.1-2016 and later code Tractions). When actuated after earthquake shut down, the car will wait 15 seconds, then close doors, run at slow speed (not to exceed 150 ft/mn) to the top terminal, then to the bottom terminal, then return to the floor where the scan was initiated where it is shut down with doors open. |
| EQ SLOW SP | Earthquake Slow Speed. Initiate from a switch inside the elevator cab. When actuated the car returns to normal service but will run at slow speed (not to exceed 150ft/mn). This input is ignored for jobs with A17.1-2016 code and later.                                                                                                                                                                                         |
| EQ SS      | Input from <b>Shaker Box</b> that tells the controller that an earthquake has occurred                                                                                                                                                                                                                                                                                                                                             |
| FR1 OFF    | When in OFF position, system looks to smokes to determine status of Fire Service                                                                                                                                                                                                                                                                                                                                                   |
| FR1 ON     | When in ON position, system is on fire recall to main egress floor                                                                                                                                                                                                                                                                                                                                                                 |
| FR1 ON2    | Same as FR1 ON; However, both switches must be off to reset fire service                                                                                                                                                                                                                                                                                                                                                           |
| FR1 RESET  | Used to reset or bypass Fire Service Phase 1                                                                                                                                                                                                                                                                                                                                                                                       |
| FR2 CANCEL | When on Phase 2 Fire, used to cancel any existing car calls                                                                                                                                                                                                                                                                                                                                                                        |
| FR2 HOLD   | Used to hold doors open when on Phase 2 Fire Service                                                                                                                                                                                                                                                                                                                                                                               |
| FR2 OFF    | When turned to OFF position, car returns to main egress floor and reverts to Phase 1 Fire Service                                                                                                                                                                                                                                                                                                                                  |
| FR2 ON     | Places car on Phase 2 Fire Service                                                                                                                                                                                                                                                                                                                                                                                                 |
| FRSA OTHER | When OFF (active low) car returns to alternate recall level on Phase 1 Fire and flashes fire hat.                                                                                                                                                                                                                                                                                                                                  |
| FRSM OTHER | When this input goes low, car returns to main egress floor on Phase 1 Fire                                                                                                                                                                                                                                                                                                                                                         |

**Table 2.2 Spare Inputs**

| Input       | Description                                                                                                                                                                                                                                                                                                               |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HC CANCEL   | When active, cancels any remaining hall calls                                                                                                                                                                                                                                                                             |
| IND SERV    | When active, places car on Independent service                                                                                                                                                                                                                                                                            |
| LOAD DISP   | Load weigher input that shortens door dwell time when activated (full car)                                                                                                                                                                                                                                                |
| LOAD HEAVY  | When active, causes car to bypass hall call until load in car decreases                                                                                                                                                                                                                                                   |
| LOAD LIGHT  | Used for anti-nuisance. If not activated, only programmed number of car calls can be latched. Placing more than this number will cancel all car calls.                                                                                                                                                                    |
| LOAD OVER   | When active, doors will be held open until load diminishes. Bypassed by FRS.                                                                                                                                                                                                                                              |
| LOAD OVER2  | When active, doors will be held open until load diminishes. Not bypassed by FRS                                                                                                                                                                                                                                           |
| OIL LOW     | When active, indicates that the tank is low on oil and shuts down the car                                                                                                                                                                                                                                                 |
| OIL LOW C   | When low indicates that the tank is low on oil and shuts down car. Complement of Oil Low                                                                                                                                                                                                                                  |
| OIL PRESS   | When low, causes the car to stop                                                                                                                                                                                                                                                                                          |
| OIL VISC    | When active, Causes pump to run in order to warm up oil                                                                                                                                                                                                                                                                   |
| PFG ENABL   | When assigned, passing floor chime will only sound when this button is pressed.                                                                                                                                                                                                                                           |
| PHE         | Optical reopening means for doors connects here. When active causes doors to reopen                                                                                                                                                                                                                                       |
| PHE-C       | Optical reopening means for doors connects here. When low, causes doors to reopen                                                                                                                                                                                                                                         |
| PHE CUT     | When active, disables Photo eye input                                                                                                                                                                                                                                                                                     |
| PIT FLOOD   | When active, prevents car from servicing floors below programmed flood level                                                                                                                                                                                                                                              |
| PTI         | When active, causes car to stop at nearest floor and cycle doors. Car is then taken out of service                                                                                                                                                                                                                        |
| PTI C       | When low, causes car to stop at nearest floor and cycle doors. Car is then taken out of service                                                                                                                                                                                                                           |
| R2          | Used for absolute floor encoding on LS-STAN and LS-QUTE selectors                                                                                                                                                                                                                                                         |
| RECALL S1   | When active, recalls car to programmed floor. See CONFIG 03 Recall Switches                                                                                                                                                                                                                                               |
| RECALL S2   | When active, recalls car to programmed floor. See CONFIG 03 Recall Switches                                                                                                                                                                                                                                               |
| RECALL S3   | When active, recalls car to programmed floor. See CONFIG 03 Recall Switches                                                                                                                                                                                                                                               |
| RECALL S4   | When active, recalls car to programmed floor. See CONFIG 03 Recall Switches                                                                                                                                                                                                                                               |
| SAFE EDGE   | When active, reopens doors                                                                                                                                                                                                                                                                                                |
| SAFE EDGE C | When low, reopens doors                                                                                                                                                                                                                                                                                                   |
| SECRTY OV   | When active, bypasses security                                                                                                                                                                                                                                                                                            |
| SLOW INSP   | Slows car to reduced inspection speed when active                                                                                                                                                                                                                                                                         |
| SMI         | Input fed by a switch that tells us that we have lost traction. Suspension means integrity                                                                                                                                                                                                                                |
| SMM         | Suspension Means Monitoring: The detection means are of the manually reset type used to detect that the elevator has lost traction or there is a problem with the suspension members. Once the fault is detected, the car shall stop at the next available floor and shut down. The fault is saved over a computer reset. |
| STD         | Slow down vane or magnet for down direction of travel. Also used for floor encoding. Step Down                                                                                                                                                                                                                            |
| STU         | Slow down vane or magnet for up direction of travel. Also used for floor encoding                                                                                                                                                                                                                                         |
| ULM         | Used to locate floor for pre-opening and for final approach. Inner leveling zone is set by ULM and DZ                                                                                                                                                                                                                     |

**Table 2.3 Spare Outputs**

| Output   | Description       |
|----------|-------------------|
| NOT USED | Input is not used |





## Configuration and Troubleshooting

**Table 2.3 Spare Outputs**

| Output     | Description                                                                                                                                                                                                                  |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| APS DONE   | HAPS asserts this output when return is complete                                                                                                                                                                             |
| ARROW DN   | Turns ON when preferred direction of travel is below car's present location                                                                                                                                                  |
| ARROW UP   | Turns ON when preferred direction of travel is above car's present location                                                                                                                                                  |
| BACKUP PWR | Battery lowering has been activated by the APS ON input (HAPS/TAPS)                                                                                                                                                          |
| CAR DELAY  | Car has not been able to move. Typically due to doors being held open                                                                                                                                                        |
| CC REGSTRD | Car call registered. Activates for 1/2 second when a car call is registered.                                                                                                                                                 |
| CC SECURED | Activates for 1/2 second if a secured car call button is pressed.                                                                                                                                                            |
| CAR GONG   | Car gongs                                                                                                                                                                                                                    |
| CAR LANTDN | Down car lanterns                                                                                                                                                                                                            |
| CAR LANTUP | Up car lanterns                                                                                                                                                                                                              |
| CLOSING    | The doors are closing or attempting to close. See output DCF.                                                                                                                                                                |
| DCF        | Activates to close the doors. Turns off after door lock is established. Door Close Function                                                                                                                                  |
| DHOLD END  | Door hold function ending warning buzzer                                                                                                                                                                                     |
| D HOLD ON  | Door hold function                                                                                                                                                                                                           |
| DOF        | Turns ON to open the doors. Turns off after DOL opens. Door Open Function                                                                                                                                                    |
| EF GONG    | Egress floor arrival gong                                                                                                                                                                                                    |
| EMSC BUZZR | Emergency Medical Service car buzzer output                                                                                                                                                                                  |
| EMSC LIGHT | Emergency Medical Service car light output                                                                                                                                                                                   |
| EMSH LIGHT | Emergency Medical Service hall light output                                                                                                                                                                                  |
| EP CARDONE | Emergency power recall done output                                                                                                                                                                                           |
| EP LIGHT   | Emergency power light. Flashes when car is selected to run on emergency power. Solid when car is selected to recall.                                                                                                         |
| EP LOBBY   | Intended to drive a light at the designated emergency power return floor after the car is at the floor with doors open on emergency power                                                                                    |
| EP ON      | Emergency power ON output                                                                                                                                                                                                    |
| EP SELECT  | Emergency power car selected to recall or run output                                                                                                                                                                         |
| EP1 ON     | Emergency power lowering phase output                                                                                                                                                                                        |
| EP1 RECALL | Emergency power car selected to recall output                                                                                                                                                                                |
| EP2 ON     | Emergency power Phase 2 run output active                                                                                                                                                                                    |
| EP2 RUN    | Emergency power car selected to run output                                                                                                                                                                                   |
| EQ BUZZER  | Turns ON after an earthquake has been detected                                                                                                                                                                               |
| EQ LIGHT   | Turns ON after an earthquake has been detected                                                                                                                                                                               |
| EQ MODE    | Used for A17.1-2016 EQ and later. Input is solid ON or Flashing depending on the current phase of the earthquake operation as required by code. - See Earthquake Indicators (Required for 2016 and Later Codes) on page 2-24 |
| EQ SLOW    | Used for A17.1-2016 EQ. Input is solid ON or Flashing depending on the current phase of the earthquake operation as required by code. See Earthquake Indicators (Required for 2016 and Later Codes) on page 2-24             |
| FAN LIGHT  | Controlled by FLO Timer (Default 5 minutes) located in System Timers                                                                                                                                                         |
| FLR GONG   | Output activates when a car passes a floor                                                                                                                                                                                   |
| FR HAT     | Illuminates when we are on Fire Phase 1                                                                                                                                                                                      |
| FR ISV     | In service for fire service light                                                                                                                                                                                            |
| FR RECALL  | Fire recall light                                                                                                                                                                                                            |
| FR1 BUZR   | Fire I buzzer                                                                                                                                                                                                                |
| FR1 DONE   | Fire recall complete                                                                                                                                                                                                         |

**Table 2.3 Spare Outputs**

| Output     | Description                                                                                                                                                                                                                                             |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FR1 LIGHT  | Fire phase one in effect light                                                                                                                                                                                                                          |
| FR1 SYSTEM | ON to indicate that one or more cars are on Fire Service Phase 1.                                                                                                                                                                                       |
| FR2 STATUS | In car fire Phase 2 service status                                                                                                                                                                                                                      |
| FSO        | Fire service light output                                                                                                                                                                                                                               |
| IND SERV   | Independent Service has been activated by IND SERV Input.                                                                                                                                                                                               |
| INSPECTION | Inspection has been activated by one of the controller inspections inputs (INCT, INCP, INA OR MRIN)                                                                                                                                                     |
| OVERLOAD   | ON once the load in the car has reached or is higher than the pre-set Overload threshold as indicated by the related input (normally 100%). Car will not close doors or move if Overload is active. Overload is bypassed by Fire Service.               |
| OVERLOAD 2 | ON once the load in the car has reached or is higher than the pre-set Overload2 threshold as indicated by the related input (at least 125%). Car will not close doors or move if Overload2 is active. Overload2 is <u>NOT</u> bypassed by Fire Service. |
| NUDG       | Usually occurs due to a blocking of photo eye input. Results in reduced closing speed and torque                                                                                                                                                        |
| NUDG BUZER | Active when nudging operation is invoked                                                                                                                                                                                                                |
| OPENING    | The doors are opening or attempting to open. See output DOF.                                                                                                                                                                                            |
| PIT FLOOD  | Pit Flood operation has been activated by the Pit Flood input, which prevents access to certain floors.                                                                                                                                                 |
| SERV IN    | Car in service for hall calls                                                                                                                                                                                                                           |
| SERV OUT   | Car not in service for hall calls                                                                                                                                                                                                                       |
| SHUTDOWN   | Car shutdown                                                                                                                                                                                                                                            |

**Table 2.4 Acronym Descriptions and Memory Locations**

| Acronym             | Description and Memory Location                                                                                                                                                                                                                                                         |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NOT USED            | An available spare input, or output, that has yet to be assigned @ CONFIG 01                                                                                                                                                                                                            |
| 2 BUS               | Primary 110 VAC bus with respect to 1 bus (GND), View status @ SPB DIAG > SPB Inputs 2BUS.B, or SPB Flags 2 BUS                                                                                                                                                                         |
| 2 STOP FLG          | Car is configured for 2 stop operation. When a car is set to be a two stop installation, CONFIG 01 > Building Setup parameters must be properly set and DLMS (Door Lock Middle String) connection on SCE-HVI board must not be connected. View Status @ PLD DIAG > PLD Flags 2 STOP FLG |
| 2LS BUS             | 110 VAC bus, when active, means that both locks and safeties are active. View @ PLD DIAG > PLD Inputs, scroll to M2L, or SPB DIAG > SPB Inputs, M2L.B > M2L.P                                                                                                                           |
| 2MV BUS             | 110 VAC bus supply from Fuse F2MV, monitoring source @ SPB DIAG > SPB Inputs M2MV.B                                                                                                                                                                                                     |
| SC-3HN/<br>SC-3HN-2 | The serial node board connected to hall call push button fixtures (hall call boxes). Use Status Info Tab and then Hall Bus Inventory to inventory and test node boards used in hall call boxes                                                                                          |
| ABD                 | Access Bottom Down input from access key switch at bottom floor, view @ SPB DIAG > SPB Inputs ABD.B, ABD.P, also view @ PLD DIAG > PLD Inputs ABD                                                                                                                                       |
| ABU                 | Access Bottom Up input from access key switch at bottom floor, view @ PLD DIAG > PLD Inputs ABU                                                                                                                                                                                         |
| ADA                 | American with Disabilities Act. Denotes special signals, timers, devices, etc. to accommodate disabled access.                                                                                                                                                                          |
| APS                 | Auxiliary Power Supply: Typically supplied by a HAPS unit                                                                                                                                                                                                                               |



## Configuration and Troubleshooting

**Table 2.4 Acronym Descriptions and Memory Locations**

| Acronym   | Description and Memory Location                                                                                                                                                                                                                              |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ATD       | Access Top Down @ PLD DIAG > PLD Inputs ATD                                                                                                                                                                                                                  |
| ATU       | Access Top Up. Key switch access @ PLD DIAG > PLD Inputs ATU                                                                                                                                                                                                 |
| CC        | Car Call @ SPA DIAG> SPA FLAGS, view flags starting with CCF (Car Call Front)                                                                                                                                                                                |
| CC ENBLx  | Car Call Enable, input used to enable a secured car call. View status @ SYSTEM I/O > PROGRAMMED INPUTS                                                                                                                                                       |
| CCF       | Please see various CCF flags @ SPA DIAG > SPA FLAGS                                                                                                                                                                                                          |
| CCT       | Car Call Dwell Time. Time for doors to remain open after a call has been answered. @ SPA DIAG > Door Dwell Times > Car Call                                                                                                                                  |
| CDB       | Car Door Bypass input from switch @ SPB DIAG > SPB Inputs and also PLD DIAG > PLD Inputs                                                                                                                                                                     |
| CDBO      | From OFF position of switch used to bypass car doors. Used for monitoring switch. Car Door Bypass Off @ SPB DIAG > SPB Inputs Car Door Bypass OFF input from switch on CPU.                                                                                  |
| CDBOB     | From OFF position of switch used to bypass car doors. Used for monitoring switch. Car Door Bypass OFF B input from switch on CPU, NOT Output. Car Door Bypass Output B @ SPB DIAG > SPB Inputs and also PLD DIAG > PLD Inputs                                |
| CGED      | Car Gong Enable Down output. Where digital PIs are missing, used to enable gongs.                                                                                                                                                                            |
| CGEU      | Car Gong Enable Up output. Where digital PIs are missing, used to enable gongs.                                                                                                                                                                              |
| COS-Timer | Car Out of Service timer @ CONFIG 01 > SYSTEM TIMERS                                                                                                                                                                                                         |
| CP        | Car Operating Panel in cab of elevator                                                                                                                                                                                                                       |
| CT        | Top of elevator cab that includes car top inspection station, door operator, selector. etc.                                                                                                                                                                  |
| CTEN      | Part of car top inspection station that enables car top direction buttons (button > signal) @ PLD DIAG > PLD Flags, Flag label CTEN.P                                                                                                                        |
| CTPR      | Cartop power control output located on SC-UPD J3.                                                                                                                                                                                                            |
| CTST      | Capture for Test switch input on SCE-CPU board, waits for existing car calls to empty out. When activated, hall calls are no longer dispatched. Once car calls have been serviced, the car waits with doors closed expecting TEST operation to be initiated. |
| CYCTST    | Cycle Test @ SPB DIAG > SPB Inputs and SPB outputs, indicates end of run cycle test active. Certain critical circuits must be exercised after every operating cycle. We call this logic cycle testing.                                                       |
| DCB       | When programed to do so, activating this input should close doors that are open. Door Close Button @ System IO > Programmed Inputs                                                                                                                           |
| DCF       | The DCF output is asserted to pick up the Door Close relay and close the doors. Down Call Front @ SPA DIAG > SPA Flags, various, DCF AT PRESS DCF BELW PRESS, etc. Door Close Function @ SYSTEM DIAG > Door Control                                          |
| DCL       | When doors are fully closed this input should be at zero volts. (low) Door Close Limit @ SYSTEM DIAG > Door Control                                                                                                                                          |
| DETS      | This limit switch is required to slow down the elevator in a manner that will prevent the car/counterweight from striking the reduced-stroke buffer at or below rated buffer speed. Down Emergency Terminal Switch @ SYSTEM DIAG > Landing System            |
| DFLT      | A signal that informs the controller that the drive has failed. Drive Fault input to controller @ System IO > System Inputs                                                                                                                                  |
| DLAB      | Bottom door lock that will be bypassed during bottom floor hoistway access operation. Door Lock Access Bottom @ System IO > System Inputs                                                                                                                    |
| DLAT      | Top floor door lock that will be bypassed during top floor hoistway access operation. Door Lock Access Top @ System IO > System Inputs                                                                                                                       |
| DLK       | DLK will be active when both car and hoistway door locks are made. Door Lock @ PLD DIAG/ PLD Flags, see HDLK (Hall), GDLK(GATE) and on OBD - LOCKS                                                                                                           |
| DLM       | Engaged when the car enters the leveling zone 6" above floor level. Down Level Marker @ System IO > System Inputs                                                                                                                                            |

**Table 2.4 Acronym Descriptions and Memory Locations**

| Acronym    | Description and Memory Location                                                                                                                                                                      |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DLMS       | When intermediate door locks are made, DLMS will be active (high). Door Lock Middle String @ PLD DIAG > PLD Inputs                                                                                   |
| DOB        | Activating DOB when the car is floor level will cause the doors to open when on normal automatic operation. Door Open Button @ System IO > Programmed Inputs                                         |
| DOF        | This output is asserted to activate the door open relay that will cause the doors to open. Door Open Function (signal) @ System IO > System Outputs                                                  |
| DOL        | When the doors are fully open, the DOL limit will go low (0 volts). It is high otherwise. Door Open Limit @ System IO > Programmed Inputs                                                            |
| DPM        | Door Position Monitor limit switch input activates approximately 2" before door lock and is used to monitor the lock condition of the doors. @ System IO > Programmed Inputs                         |
| DRDY       | DRDY is a signal from the drive that it is ready to operate. Drive Ready (input to controller) @ System IO > System Inputs                                                                           |
| DRE        | The drive tells the controller that it has control of the motor so it is safe to move the car. Drive Enable (output from controller) @ System IO > System Outputs                                    |
| DRO        | DRO tells the controller that it is outputting current to the motor. Car should be moving. Drive On (input to controller) @ System IO > System Inputs                                                |
| DSL        | As a backup to the normal slow down means, the slow down limit switches remove power from the high speed circuits to slow down car. Down Slow Limit @ System IO > System Inputs, see flags DSL1/DSL2 |
| DTL        | Normally assigned as the Down Normal Terminal Limit that prevents the car from going on to the final limit switch. Down Terminal Limit @ System IO > System Inputs                                   |
| DZ         | The DZ/DZF/DZR signal that we are within 3" of floor level. Doors will not open unless this signal is active. Door Zone @ SPA DIAG > SPA Flags and SYSTEM DIAG > Landing System and SPB DIAG > Flags |
| EQ         | Earthquake. A <b>ring and string</b> or seismic switch (or both) will be used to activate earthquake operation. Earthquake view @ SYSTEM I/O > PROGRAMMED INPUTS, EQ SS or EQ CWT                    |
| EQR        | Earthquake operation is a latching function that requires a manual reset which this switch provides. @ SPB DIAG > SPB Inputs, see EQR.B                                                              |
| ESC        | Fed by Firefighters Stop Switch. Car top stop switch emergency exit contact and SOS switch. Emergency Stop Car @ System IO > System Inputs                                                           |
| ESCTO.B    | Emergency Switch Cutout enable, Safety Processor B @ SPB DIAG > SPB Outputs                                                                                                                          |
| ETH        | Ethernet                                                                                                                                                                                             |
| FB         | Fed by fault bypass jumper on SCE-CPU. Fault Bypass @ SPB DIAG > SPB Inputs, see FBYP.P Flag                                                                                                         |
| FR2 CANCL  | In-Car Fire Service Car Call Cancel @ SYSTEM IO > PROGRAMMED INPUTS, FR2 Cancel                                                                                                                      |
| FR2 HOLD   | In-Car Fire Switch Hold System IO > PROGRAMMED Inputs, FR2 Hold                                                                                                                                      |
| FR2 OFF    | In-Car Fire Switch OFF @ System IO > PROGRAMMED Inputs, FR2 OFF                                                                                                                                      |
| FR2 ON     | In-Car Fire Switch ON @ System IO > PROGRAMMED Inputs, FR2 ON                                                                                                                                        |
| FLO        | Fan Light Output @ SPA DIAG > SPA Flags also in CONFIG 01 > System Timers                                                                                                                            |
| FLT Bypass | Bypass input on SCE-CPU board, view @ PDL DIAG > PLD INPUTS, FLT BYP JPR and also @ SYST 1/O, System Inputs, FLT BYP                                                                                 |
| FLPWR      | Car fan and light power control @ SPB DIAG > SPB Outputs, FLPWR.B                                                                                                                                    |
| FR         | Fault Reset @ PLD DIAG > PLD Inputs, FLT RST BTN                                                                                                                                                     |
| FR HAT     | Fire service light enable output @ System IO > Programmed Outputs                                                                                                                                    |
| FR1 BUZZER | Fire service buzzer enable output @ System IO > Programmed Outputs                                                                                                                                   |
| FR1 LIGHT  | Fire service light, lobby, enable @ System IO > Programmed Outputs                                                                                                                                   |
| FR1 OFF    | Fire recall switch off input @ System IO > Programmed Inputs, FR2 OFF                                                                                                                                |
| FR1 ON     | Fire recall switch on input @ System IO > Programmed Inputs, FR2 ON                                                                                                                                  |



## Configuration and Troubleshooting

**Table 2.4 Acronym Descriptions and Memory Locations**

| Acronym    | Description and Memory Location                                                                                                                                                   |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FR1 RESET  | Fire Recall reset input @ System IO > Programmed Inputs                                                                                                                           |
| FRA        | Fire Recall Alternate @ System IO > Programmed Inputs                                                                                                                             |
| FRS        | Fire Recall Main @ System IO > Programmed Inputs                                                                                                                                  |
| FRSA       | Fire Recall Switch, this car Alternate @ System IO > Programmed Inputs                                                                                                            |
| GOV        | Governor input that opens if car over speeds. Drops safety string and activates rope gripper.                                                                                     |
| GP         | General Purpose. Cycle Test I/O if used                                                                                                                                           |
| GS         | PLD gate switch monitor @ PLD DIAG > PLD Inputs                                                                                                                                   |
| HAPS       | Hydraulic Auxiliary Power Supply (MCE APS product for hydraulic elevators)                                                                                                        |
| HC         | Hall Call                                                                                                                                                                         |
| HCF        | Hall Call Front                                                                                                                                                                   |
| HCT        | Hall Call Time. Defined time for doors to remain open @ SPA DIAG > Door Dwell Timers                                                                                              |
| HDB        | From ON position of switch used to bypass hoistway doors. Also places car on inspection simultaneously. Hoistway Door Bypass signal to Safety Processor B @ SPB DIAG > SPB Inputs |
| HDBO       | From OFF position of switch used to bypass hoistway doors. Used for monitoring switch. Hoistway Door Bypass Off @ SPB DIAG > SPB Inputs                                           |
| HDBOB      | From OFF position of switch used to bypass hoistway doors. Used for monitoring switch. Hoistway Door Bypass Off B @ SPB DIAG > SPB Inputs                                         |
| ICEN       | In Car Inspection Enable @ System IO > System Inputs                                                                                                                              |
| ICPD       | In Car Inspection push button down @ System IO > System Inputs                                                                                                                    |
| ICPU       | In Car Inspection push button up @ System IO > System Inputs                                                                                                                      |
| ICTD       | Inspection Cartop down button @ System IO > System Inputs                                                                                                                         |
| ICTU       | Inspection Cartop up button @ System IO > System Inputs                                                                                                                           |
| IN1H       | Programmable 24VDC active high input. Seismic (SS) or Counterweight (EQH) input. See Job prints @ SPC DIAG > SPC inputs.                                                          |
| IN2H       | Programmable 24VDC active high input. Seismic (SS) or Counterweight (EQH) input. See Job prints @ SPC DIAG > SPC inputs.                                                          |
| INA        | Inspection, Access. Hoistway access enable switch input @ System IO > System Inputs                                                                                               |
| INCP       | Inspection Car Panel @ System IO > System Inputs                                                                                                                                  |
| INCT       | Inspection, Car Top @ System IO > System Inputs                                                                                                                                   |
| IND        | Independent service input, @ SYSTEM IO > PROGRAMMED Inputs                                                                                                                        |
| LLI        | Light Load Input. Input from load weigher @ System IO > Programmable Inputs                                                                                                       |
| LOT        | Lobby Open Dwell Time. Defined time for doors to remain @ SPA DIAG > Door Dwell Times                                                                                             |
| MC-CPI-2   | The serial car panel interface board normally used to convert car panel signals to serial                                                                                         |
| MEB3 4     | Monitor of solid state driver for EB3/4 @ SPB DIAG > SPB Inputs (Car Stop Bypass)                                                                                                 |
| MLT        | Motor Limit Timer (Anti-Stall) @ ACTION INFO > Prohibit Run/Start Due to                                                                                                          |
| MAIN CLOCK | Main Clock @ PLDDIAG > PLD Inputs                                                                                                                                                 |
| MPME       | Monitor for PME solid state driver for UP Fast valve @ PLD DIAG > PLD Inputs                                                                                                      |
| MPSBR      | MPSBR is used by HAPS to signal the controller to lower the car. MPSBR can be found on page 3 of System Inputs.                                                                   |
| MRDN       | Machine Room DOWN (inspection direction button) @ PLD DIAG > PLD Inputs                                                                                                           |
| MREN       | Machine Room Enable (inspection enable button) @ PLD DIAG > PLD Inputs                                                                                                            |
| MRIN       | Machine Room Inspection @ PLD DIAG > PLD Inputs                                                                                                                                   |
| MRUP       | Machine Room UP (inspection direction button) @ PLD DIAG > PLD Inputs                                                                                                             |
| NDF        | Nudging Function (signal) @SPC DIAG > SPC Outputs                                                                                                                                 |

**Table 2.4 Acronym Descriptions and Memory Locations**

| Acronym  | Description and Memory Location                                                            |
|----------|--------------------------------------------------------------------------------------------|
| NUDG     | Nudging (door closing) @ SYSTEM DIAG > Door control                                        |
| PFG      | Passing Floor Gong @ System IO > Programmable Outputs, see FLR GONG flag                   |
| PHE      | Photo eye protection device for elevator car doors @ SYSTEM DIAG > Door Control            |
| PLD      | Programmable Logic Device                                                                  |
| PME.B    | Primary Output to pick Up Fast valve by SPB @ SPB DIAG > SPB Outputs                       |
| PME.P    | Primary Output to pick Up Fast valve by PLD @ PLD DIAG > PLD Outputs                       |
| PMP      | Primary Motor Contactor Proving @ PLD DIAG > PLD Inputs - not used on Hydro controllers    |
| PTI      | Power Transfer Input. Use to shut down the elevator @ System IO > Programmable Inputs      |
| SAFC.P   | Safety String Car @ SPB DIAG > SPB Inputs                                                  |
| SAFH.B   | Safety String Hoistway @ SPB DIAG > SPB Inputs                                             |
| SAFP     | Safety PLD @ PLD DIAG > PLD Outputs                                                        |
| SANE(x)  | Processing device verification @ PLD DIAG > PLD Flags                                      |
| SCE-CON  | Small interface board for LS-EDGE-EL landing system. Generally installed in COP or cartop. |
| SE       | Safe Edge protection device for elevator car doors @ SYSTEM DIAG > Door Control            |
| SPA      | Safety Processor A, car operation and control @ SPA DIAG                                   |
| SPB      | Safety Processor B, car motion control @ SPB DIAG                                          |
| SPC      | Safety Processor C, communications @ SPC DIAG                                              |
| SPD(n)   | Landing System speed input @ SPB DIAG > SPB Numeric, see Profile List and Pos              |
| TRACTION | Traction/Hydro select (for PLD configuration) @ CONFIG 01 > Building Setup                 |
| UCF      | Up Call Front @ SPA DIAG > SPA Flags SPA DIAG > SPA Flags                                  |
| UETS     | Up Emergency Terminal Switch @ SYSTEM DIAG > Landing System                                |
| UIM      | Car has left the landing zone with both doors open. Unintended Motion                      |
| UIMRST   | Manual reset for UIM. Unintended Motion Reset @ System IO > System Inputs                  |
| ULM      | Up Level Marker @ System IO > System Inputs                                                |
| USB      | Universal Serial Bus                                                                       |
| uSD      | Micro SD RAM                                                                               |
| USLx     | Up Slow Limit @ System IO > System Inputs see USL1 and USL2 flags                          |
| UTL      | Up Terminal Limit @ System IO > System Inputs                                              |
|          |                                                                                            |





## Configuration and Troubleshooting

### Earthquake Indicators

The following Earthquake Indicators apply during all modes of operation including Fire Phase II.

**Table 2.5 Earthquake Indicators (Required for 2016 and Later Codes)**

| EQ Phase                                                                                                                                                                                                                                         | EQ Mode (COP) | EQ Slow Speed (COP) | Seismic Status (Insp. Stations) | Variable Message Display (Alternate - COP) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------|---------------------------------|--------------------------------------------|
| Normal                                                                                                                                                                                                                                           | OFF           | OFF                 | OFF                             |                                            |
| Seismic device actuation<br>Seismic shutdown not complete*                                                                                                                                                                                       | FLASH         | OFF                 | ON                              | EQ Mode (message ID: 8)                    |
| Seismic device actuation<br>Seismic shutdown complete*                                                                                                                                                                                           | ON            | OFF                 | ON                              | EQ Mode (message ID: 8)                    |
| Seismic device reset<br>Seismic shutdown complete*<br>Waiting for slow scan                                                                                                                                                                      | FLASH         | FLASH               | ON                              | EQ Waiting for Slow Scan (message ID: 42)  |
| Slow scan initiated or in progress                                                                                                                                                                                                               | FLASH         | ON                  | ON                              | EQ Slow Scan (message ID: 43)              |
| Scan complete<br>Waiting for slow speed operation                                                                                                                                                                                                | ON            | FLASH               | ON                              | EQ Waiting for Slow Speed (message ID: 44) |
| 60 second timer elapsed without initiating slow speed operation                                                                                                                                                                                  | FLASH         | FLASH               | ON                              | EQ Waiting for Slow Scan (message ID: 42)  |
| Slow speed operation initiated within 60 seconds                                                                                                                                                                                                 | ON            | ON                  | ON                              | EQ Slow Speed (message ID: 45)             |
| Inspection, hoistway access or door lock bypass initiated during slow scan or speed operation<br>Slow scan aborted                                                                                                                               | ON            | OFF                 | ON                              | EQ Mode (message ID: 8)                    |
| Counterweight displacement detection device actuation                                                                                                                                                                                            | FLASH         | OFF                 | FLASH                           | EQ Mode (message ID: 8)                    |
| *NOTE: Seismic shutdown is complete when the car is at a floor with doors fully open. If door operation is not automatic, seismic shutdown is complete when the car is at a floor regardless of door status (Fire Phase II, Manual Doors, etc.). |               |                     |                                 |                                            |
| The shaded rows are applicable only when the elevator is equipped with the Slow Speed Hoistway switch or command (which is optional).                                                                                                            |               |                     |                                 |                                            |



## Web Browser Access

Element hosts a web server that allows web browser access to the system to view the event log.

### Web Setup

Building IT personnel can configure web settings for the Element controller through the on-board touch screen interface. If you are connecting locally, you can probably just connect Element to your local Ethernet and enter the Element IP address as described under “Access” below.

1. With Element powered and on machine room inspection operation, select the CONFIG 03 screen, Network Settings menu on the touch screen.
2. Set and save IP settings appropriate to the interface being used.

### Access

1. Launch the web browsing application.
2. Enter the Element IP address into the browser URL window, and press Return.
3. Once the connection is established, an interface screen will appear.

## USB Parameter Transfer

Controller parameter settings can be copied to a USB drive (thumb drive) and transferred to a second controller to save set up time. Should it be necessary to replace the SCE-CPU board, be sure to backup the parameter settings so they can be uploaded to the new board. To transfer the parameter settings to a USB drive:

1. Insert the USB drive in the USB connector on the SCE-CPU board.
2. On the touch screen, navigate to the Utilities screen.
3. Select File Transfer.
4. Select Export Current Settings to USB Drive. Follow on-screen instructions.

Uploading the parameters to the next controller:

1. Insert the USB drive in the USB connector on the SCE-CPU board.
2. On the touch screen, navigate to the Utilities screen.
3. Select File Transfer.
4. Select Import & Apply Settings from USB Drive. Follow on-screen instructions.



## Event Log Archive /Email

The Element event log is stored on a micro SD card on the SCE-CPU board. When log capacity is reached, the oldest event will be deleted as a new event is recorded. See also [Event Log Viewing on page 2-82](#).

## USB Archive

You can copy the event log from the SD card to a USB drive.

1. Insert a USB drive on the SCE-CPU board.
2. Open the UTILS screen; select File Transfer.
3. Scroll to the lower screen; press Export Events to USB Drive.
4. Press OK to confirm or Exit to abort.
5. Place the USB drive in a USB port on your PC (or an attached adapter).
6. If you have Microsoft Excel or a similar program, open it and import the log file from the USB drive. It will open in table format and may be saved as an Excel file.
7. If you do not have Excel or a similar program, you can open the log file in any word processing or “text” application and save it as simple text or as a .csv (comma separated values) file.

## Ethernet Archive

If the Element control is connected to Ethernet:

1. Open your web browser.
2. Enter the Element IP address into the URL entry window and press Return.
3. When contact is established, select the Faults tab. After a few moments, current events will appear followed by the Event Log.
4. Depending upon applications available on your PC:
  - Right click on the screen and select “Select All.”
  - Right click on the highlighted text and select “Copy.”
  - Open an application like Microsoft Word or Simple Text on your PC.
  - Select Paste. (A landscape page layout is best if you are in a word processing application.)
  - Save the file.

When you initially right-clicked on the screen, you may have seen other options such as Save to PDF, or Export to Excel. Additional options like these will vary depending on what applications are installed on your PC. These additional options are also available to you as a way to capture and save event log files.

## email

Once the log file is on your PC, you can easily attach it to an email and send it to any recipient for troubleshooting help or central archiving.

# Troubleshooting Reference


**Danger**

Always observe safety precautions when troubleshooting. Lethal voltages are present.

This section includes:

- Bus voltage testpoints and fuse locations
- Touch screen tools, [page 2-28](#)
- Circuit board descriptions, [page 2-28](#)
- Fault Message Descriptions, [page 2-48](#)

## Bus Voltage Testpoints and Fuse Locations

Required operating voltages are distributed through fused buses.

**Table 2.6 Bus Voltages**

| Bus | Description | Testpoints                                                                                                                                                                                                                                        |
|-----|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Ground      | Controller ground is critical. Poor ground introduces potential danger, electrical noise, and can prevent system inputs, outputs, and assemblies from working correctly. System must be grounded to a point certified by an Electrician. NEC 250. |
| 2   | 110 VAC     | 110VAC, 2 Bus for high voltage connections throughout system                                                                                                                                                                                      |
| 24  | 24 VDC      | 24VDC, +24, 24CTP, 24HWY buses.                                                                                                                                                                                                                   |

**Table 2.7 SC-UPD Board Fuses**

| Fuse   | Use                                                                                                                    |
|--------|------------------------------------------------------------------------------------------------------------------------|
| F2     | 2 Bus, 2A, 250V. Bussman AGC, Littelfuse 312                                                                           |
| F2MV   | 2MV Bus, 3A, 250V. Bussman MDQ, Littelfuse 313                                                                         |
| F24CTP | 24CT Bus, 2A, 250V, Bussman AGC, Littelfuse 312.                                                                       |
| F24FS  | F24FS Bus, 2A, 250V. Bussman MDQ, Littelfuse 313                                                                       |
| F24HWY | 24H Bus, 1A, 250V, Bussman AGC, Littelfuse 312. 24V supply to fire alarm initiating devices, switches, and indicators. |
| F24VDC | 24VDC Bus, 6A, 250V, Bussman AGC, Littelfuse 312.                                                                      |
| FDLN1  | F7, 4A, 250V, Bussman MDQ Littelfuse 313. AC to door operator.                                                         |
| FDLN2  | F8, 4A, 250V, Bussman MDQ Littelfuse 313. AC to door operator.                                                         |
| FFLO   | Car fan and light output. 6A, 250V, Bussman AGC, Littelfuse 312                                                        |
| FGOV   | GOS1, 4A, 250V, Bussman AGC, Littelfuse 312. 110VAC to governor overspeed switch.                                      |
| FXL1   | 10A, 250V, Bussman AGC, Littelfuse 312. Supply for CPU, CTPR, LOPM, 24CT, and 24H buses.                               |
| FXL2   | 10A, 250V, Bussman AGC, Littelfuse 312. Supply for CPU, CTPR, LOPM, 24CT, and 24H buses.                               |

**Table 2.8 Backplane Fuses**

| Bus       | Description  | Type                        |
|-----------|--------------|-----------------------------|
| FL1 - FL3 | Line Voltage | See labeling in controller. |



## Configuration and Troubleshooting

### Touch Screen Tools

#### System I/O

At this level, inputs and outputs are grouped separately and alphabetically with no deference to their function.

- Inputs and Outputs: Indicators reflect activation of that physical input or output. When the board LED is lighted, the indicator will also be lighted.
  - System Inputs: Dedicated (non-programmable) inputs status indicators.
  - System Outputs: Dedicated (non-programmable) outputs status indicators.
  - Programmed Inputs: Programmable inputs status indicators.
  - Programmed Outputs: Programmable outputs status indicators
- 1. If an input is not in the proper state, troubleshoot the connection and the source.
- 2. If an output is in the proper state but the system is not reacting accordingly, troubleshoot the connection and the destination equipment.
- 3. If an output is not in the proper state, check the job prints to see what inputs or internal flags must be asserted in order to enable the output.
  - Troubleshoot associated inputs in System I/O or System Diagnostics.
  - Troubleshoot internal flags according to their origination (i.e., safety processors A, B, or C, or PLD).

#### System Diagnostics

At this level, inputs and outputs are gathered into sets according to the system they affect (their collective function). (See troubleshooting steps above.)

- Motion IO: Indicators for input and output activity during car motion.
- Door Control: Indicators for door related inputs and outputs.
- Landing System: Indicators for landing system related inputs and outputs.
- Event Log: Time stamped entries for system events and faults.
- Diagnostics Tree: Indicators on this screen must be ON in order for the related function to succeed. Some indicators are single; some (+) expand to a list when selected. If the system is not doing what it is supposed to, an unlighted indicator points you to the problem.
- Active Faults: Displays currently active faults.

#### SPA, SPB, SPC, PLD Diagnostics

For each system processor and for the PLD, these screens can provide information useful for in-depth diagnostics. Flags are visible indicators of active signals, descriptively labeled so you can understand what they represent. Numerics are register data bit information and are intended for factory diagnostics. They are also useful when MCE Technical Support is assisting in diagnosing a system.

The job prints will indicate what flags/functions are required to enable an output. The output (or an input) can be viewed through the System I/O or System Diagnostics screen. Associated flags/functions can be viewed through the screen for the appropriate safety processor or PLD.

**SPA Diag**      Car operating control related indicators.

**SPB Diag**      Motion related indicators (valve enables, pump information, limits, etc.).

**SPC Diag**      Communications related indicators.

**PLD Diag**      System wide indicators.

### Action Info

This display provides indicators that can help to discover why an unexpected action is occurring.

- Car Call Canceled Due To: Inputs or states that can cause car calls to be cancelled.
- Hall Call Canceled Due To: Inputs or states that can cause hall calls to be cancelled.
- Door Open Due To: Inputs or states that can cause doors to open or remain open.
- Prohibit Run/Start Due to: Inputs or states that can cause starting or running to be disabled.
- Door Close Due To: Inputs or states that can cause doors to close or remain closed.

### Status Info

View:

- CPU, BUS, COM Status
- Hall Bus Inventory: When all hall calls are installed and functioning properly use the INVTRY control on this screen to add them to system memory. When troubleshooting hall calls at a future date, use the TEST control to automatically poll and test all switches and lamps.
- Software Version information
- CAN BUS Viewer
- Address Diagnostics
- Other Car Settings, including Emergency Power, etc.

### Stats

Collected statistics for maintenance and system activity.

- Maintenance Statistics: Collected run-related statistics. Compiled until manually cleared.
- Hourly Statistics: Car and hall call statistics per hour for the preceding 24 hours.

### Scope

The virtual oscilloscope allows you to select up to four signals from an elevator subsystem and display them in near real-time.

1. Select the subsystem:
  - System Inputs
  - System Outputs
  - Landing System
  - Programmed Inputs
  - Programmed Outputs
2. Use the scroll arrows to move through signals.
3. For each desired signal, tap on one of the four boxes on the right of the screen. The signal will appear in the box.
4. Tap on OK to return to the selection screen, then on View Scope.



---

## Configuration and Troubleshooting

5. Touch the scope arrows to adjust trace speed (amount of time represented by screen graticules).
6. The selected signals will remain on the scope until you replace them with others.

## Circuit Board Descriptions

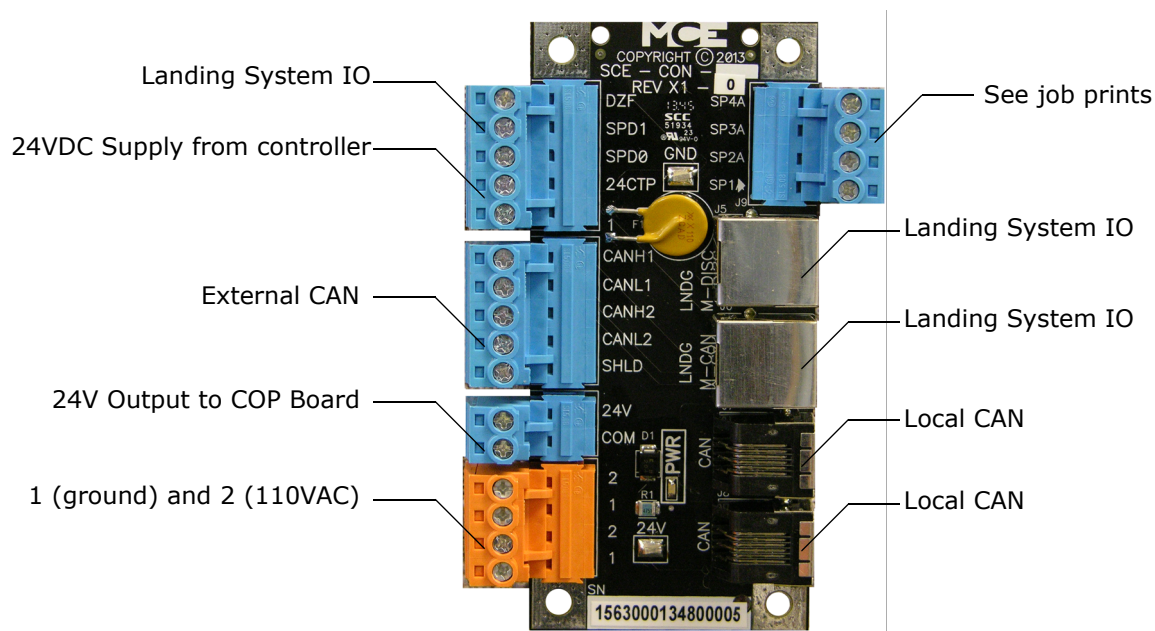
Element hydraulic controller circuit boards and solid state starters:

- MC-CPI-2: COP serialization, landing system interface, added I/O [page 1-42](#), [page 2-33](#)
- SC-3HN: Serial Hall Call Node Board, [page 1-39](#)
- SC-3HN-2: Serial Hall Call Node Board, Gen.2, [page 1-42](#)
- SCE-CON: Interface Board, [page 2-31](#)
- SCE-CPU: Controller processor, [page 2-35](#)
- SCE-HVI: High voltage interface, [page 2-42](#)
- SCE-UPD: Unregulated power distribution, [page 2-45](#)
- Solid state starter, [page 2-47](#)

## SCE-CON Board

The SCE-CON board is an interface between car-mounted equipment and the elevator controller. The SCE-CON board is connected to the elevator controller using a CAN serial connection and additional conductors as required through the traveller and connects to the landing system and car call serializing boards through local CAN and discrete connections.

### Figure 2.5 SCE-CON Connector Board



### Table 2.9 SCE-CON Connector Assignments

| Connector | Assignment | Description                                            |
|-----------|------------|--------------------------------------------------------|
| J1        | SPD0       | Speed bit 0 from the LS-EDGE landing system            |
| J1        | SPD1       | Speed bit 1 from the LS-EDGE landing system            |
| J1        | DZF        | Front Door Zone signal from the LS-EDGE landing system |
| J1        | 24CTP      | 24VDC fused power out (F1 is 72V, 1100mA)              |
| J2        | CANH1      | CAN port 1, H                                          |
| J2        | CANL1      | CAN port 1, L                                          |
| J2        | CANH2      | CAN port 2, H                                          |
| J2        | CANL2      | CAN port 2, L                                          |
| J2        | SHLD       | CAN shield                                             |
| J3, Pin 1 | 2          | 120VRMS from machine room                              |
| J3, Pin 2 | 1          | Ground                                                 |
| J3, Pin 3 | 2          | 120VRMS to load weigher                                |
| J3, Pin 4 | 1          | Ground                                                 |
| J4        | 24V        | 24V to first MC-CPI-2 board                            |
| J4        | COM        | Common for 24V                                         |
| J5        | SPD0       | Speed bit 0 from LS-EDGE sensor                        |
| J5        | SPD1       | Speed bit 1 from LS-EDGE sensor                        |
| J5        | SPD2       | Speed bit 2 from LS-EDGE sensor                        |
| J5        | SP1A       | DTL                                                    |
| J5        | SP2A       | DSL1                                                   |





## Configuration and Troubleshooting

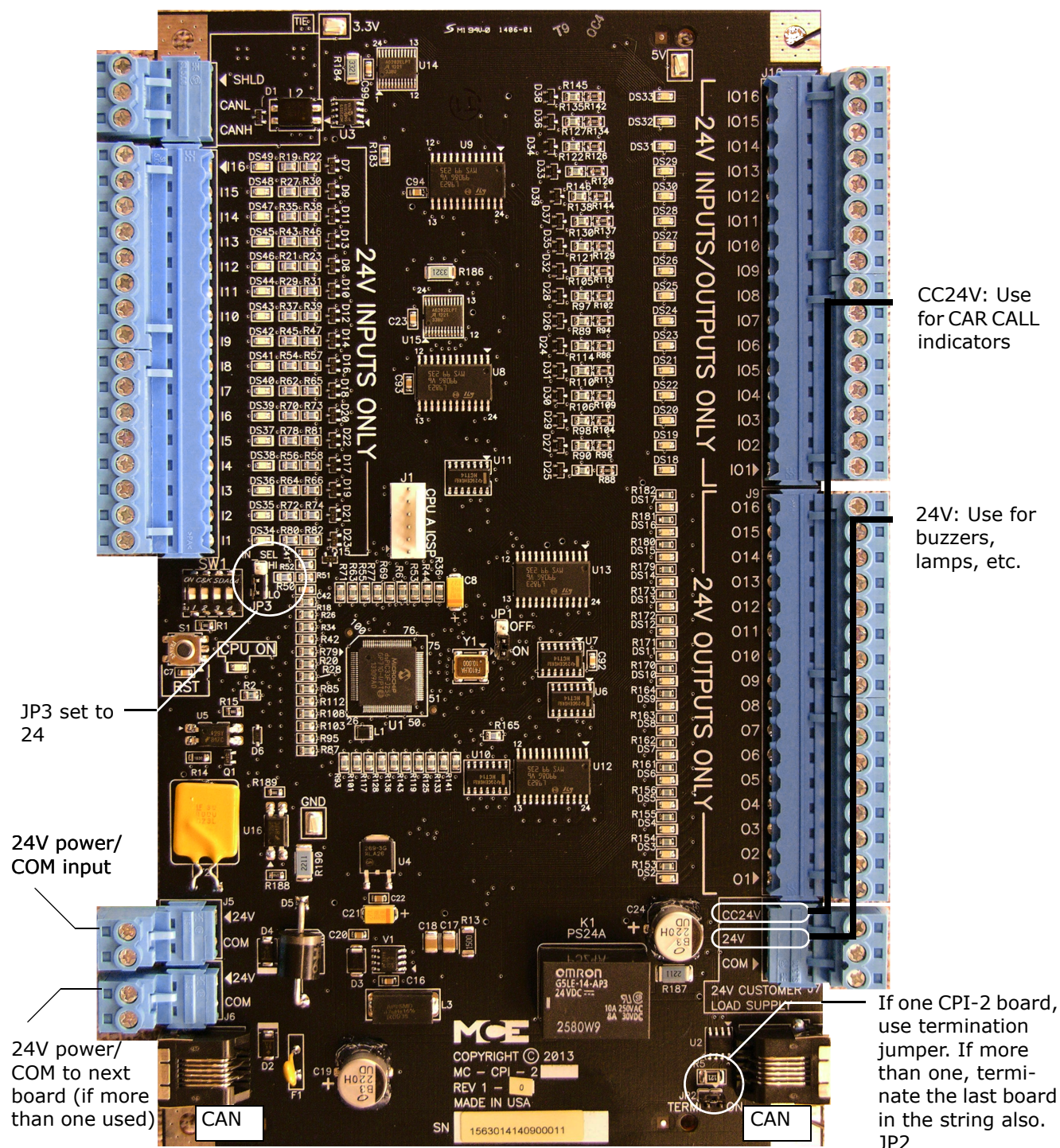
**Table 2.9 SCE-CON Connector Assignments**

| Connector | Assignment | Description                        |
|-----------|------------|------------------------------------|
| J5        | SP3A       | USL1                               |
| J5        | DZR M      | Door Zone Rear                     |
| J5        | SP4A       | UTL                                |
| J5        | CGND       | Pins 9 and 10. Chassis ground.     |
| J6        | CANH2      | CAN port 2, H                      |
| J6        | CANL2      | CAN port 2, L                      |
| J6        | DZF M      | Door Zone Front                    |
| J6        | CANH1      | CAN port 1, H                      |
| J6        | 12V BAT    | 12V, Battery output                |
| J6        | CANL1      | CAN port 1, L                      |
| J6        | DGND       | Ground                             |
| J6        | V UNREG    | Unregulated ~24V                   |
| J6        | CGND       | Pins 9 and 10. Chassis ground.     |
| J7        | SNN1       | Unused                             |
| J7        | V UNREG    | Unregulated ~24V from machine room |
| J7        | CANH2      | CAN port 2, H                      |
| J7        | CANL2      | CAN port 2, L                      |
| J7        | Pins 4, 6  | Ground                             |
| J7        | M1, M2     | Chassis ground                     |
| J8        | SNN 2      | Unused                             |
| J8        | V UNREG    | Unregulated ~24V from machine room |
| J8        | CANH2      | CAN port 2, H                      |
| J8        | CANL2      | CAN port 2, L                      |
| J8        | Pins 4, 6  | Ground                             |
| J8        | M1, M2     | Chassis ground                     |

## MC-CPI-2

MC-CPI-2 boards provide serialization of control panel inputs and assignable I/O for interface to landing systems and/or door operators. CPI-2 boards are installed in the car control panel enclosure or, when used to expand system I/O, in the controller enclosure as well.

### Figure 2.6 MC-CPI-2 Board



## Configuration and Troubleshooting

**CPI-2 Configuration** The CPI-2 board(s) in your controller is/are factory-configured to match the job requirements.

- Jumpers:
  - JP1: Factory
  - JP2: Used to terminate the CAN communication bus. If you have just one CPI-2 board, this jumper should always be in the ON position. If you have more than one CPI-2 board, use this jumper on the last board in the string only.
  - JP3: Sets the inactive level (OV or 24V) for the 24V INPUTS ONLY connections.
    - 24V: OFF state is 24V. ON state is oV. (**USE FOR ELEMENT applications.**)
    - oV: Off state is oV. ON state is 24V.

### Note

24V is the maximum input that may be applied. For outputs, 24V, 6W is the maximum load supported.

- DIP Switch SW1, **Board address switches:** Four-position DIP switch SW1 provides a unique address for each CPI board (you should never have two CPI boards with the same SW1 setting).

| DIP 1 | CPI Boards |     |     |
|-------|------------|-----|-----|
| Board | SW1        | SW2 | SW3 |
| 0     | Off        | Off | Off |
| 1     | On         | Off | Off |
| 2     | Off        | On  | Off |
| 3     | On         | On  | Off |

- SW1, switch 3, must remain OFF at all times.
- SW1, switch 4, determines CAN baud rate:
  - ON: 500k - used if board is mounted INSIDE the Element controller cabinet
  - OFF: 250k - default setting; use with board(s) mounted in COP

**Installation and Connections** Please refer to “SC-3HN-2 Hall Calls” on page 1-42.

### SC-3HN or SC-3HN-2 Serial Hall Call Node Board

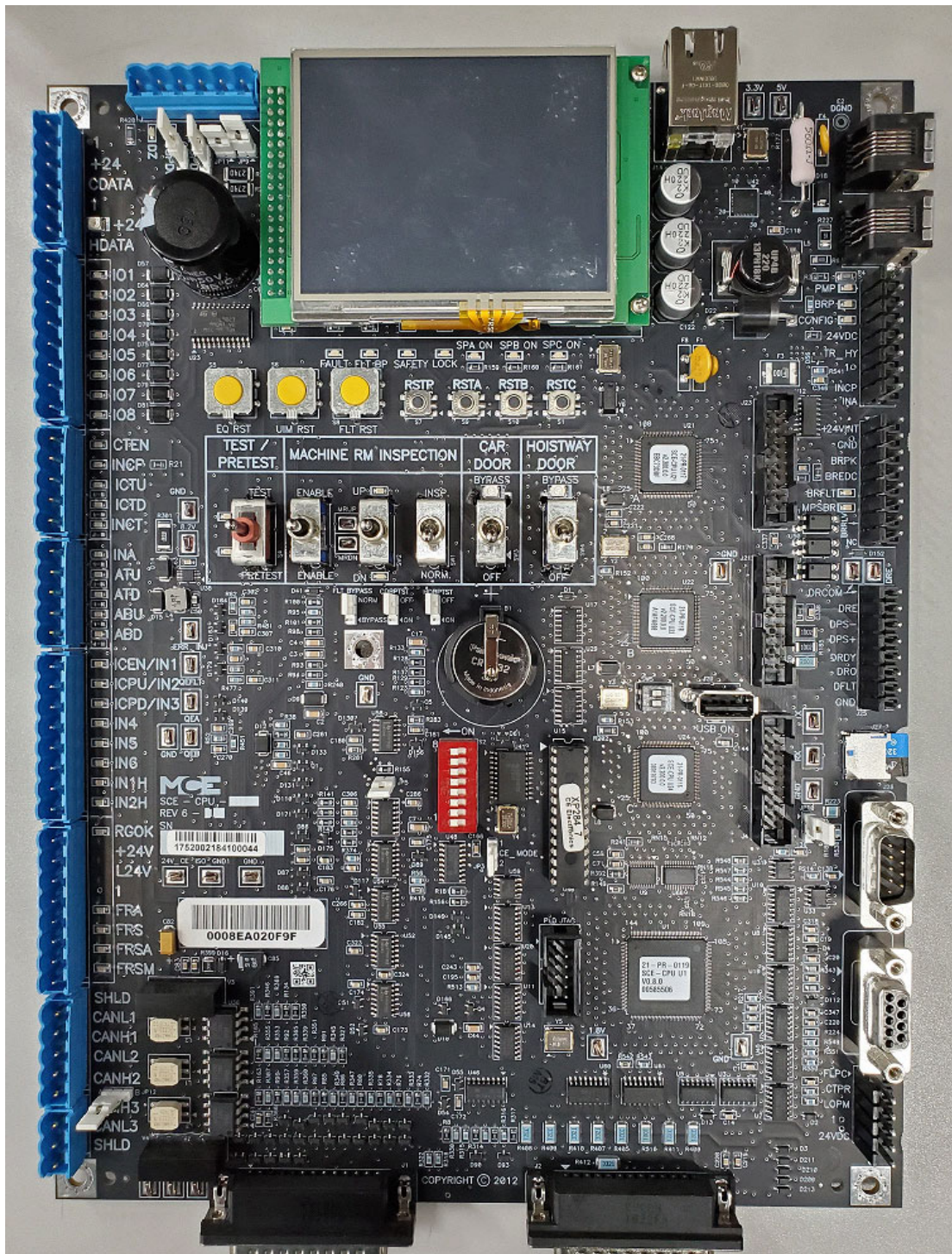
Please refer to “Hall Calls” on page 1-39 for a detailed description.



## SCE-CPU

The SCE-CPU board provides system logic and control. The touchscreen is mounted on this board as are machine room control switches.

**Figure 2.7 SCE-CPU Revision 6-1**

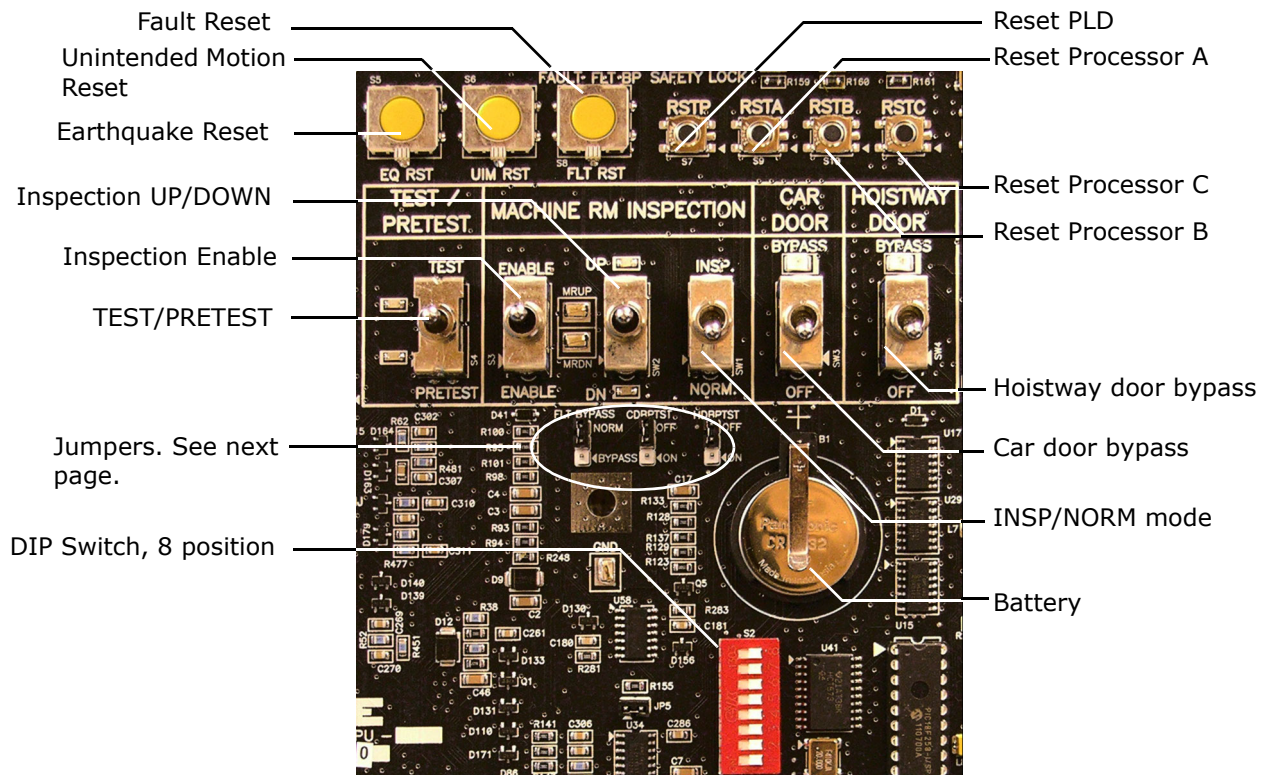




## Configuration and Troubleshooting

### CPU Switches, Interface

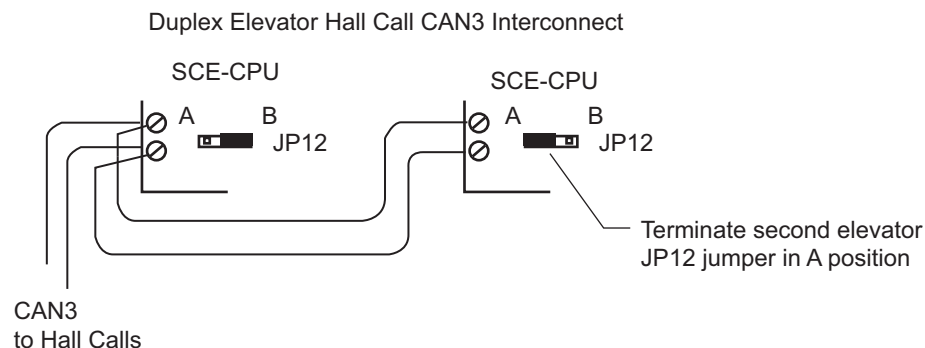
CPU board controls are shown below.



- Earthquake Reset: Press EQ RST to reset earthquake fault.
- Unintended Motion Reset: Not applicable to hydro control.
- Fault Reset: Press FLT RST to reset latching faults.
- PLD & Processor Resets: Steadily lighted indicators for the PLD and Processors indicate proper function. Press the Reset to reboot the associated processor or PLD.
- Test/Pretest: Placing the car on PRETEST causes it to service any registered car calls but not respond to hall calls. When car calls are satisfied, the idle car will recall to the programmed floor or remain at the last floor served if no recall floor is programmed. Door action at the capture floor is also programmable. Placing the car on TEST mode allows a technician or adjuster to exercise the car at normal operating speed but disables doors to prevent entry. Car calls may be placed through the touch screen only.
- Machine Room Inspection: Placing the INSP/NORM switch in the INSP position puts the car on machine room inspection operation. In this mode, the car will run at inspection speed in response to the ENABLE and UP or DN switches being pressed and held. The car will stop when the switches are released.
- Door Bypass: Placing a switch in the BYPASS position will allow the car to be run in the absence of the normal Car door and/or Hoistway door inputs (door limits, lock contacts, position monitor).
- CPU Battery: Maintains power to the clock (date and time) used by the event log. If “Cell Battery Volts Low” message is displayed, replace CPU battery with CR2032, lithium-manganese, 3.0 V, 225mAh, ANSI 5004LC. Battery can be replaced while power is on, but it is

safer to first remove power to avoid short to board. Reset clock using UTILS > DATE AND TIME).

- Jumpers: ( [“SCE-CPU Testpoints and Jumpers” on page 2-39](#))
  - JP1, CDBPTST: ON enables Car Door Bypass regardless of switch position or functionality; OFF is the normal position for the jumper.
  - JP2, HDBPTST: ON enables Hoistway Door Bypass regardless of switch position or functionality; OFF is the normal position for the jumper.
  - JP3, MCE only. Factory set to configure CE bus.
  - JP4, FLT Bypass: To bypass faults:
    - Construction Mode: FLT BYPASS jumper to BYPASS. UTILS > CONSTRUCTION FAULT BYPASS ON. Car on INSPECTION (Cartop). Bypasses controller response to most faults. Bypass remains active, even across power cycles, until set to NORM.
    - Inspection Mode: FLT BYPASS jumper to BYPASS. UTILS > INSPECTION FAULT BYPASS ON. Car on INSPECTION. Bypasses controller response to many faults. Bypass remains active, even across power cycles, until set to NORM.
    - Automatic Mode: FLT BYPASS jumper to BYPASS. UTILS > AUTOMATIC MODE FAULT BYPASS ON. Bypasses controller response to some faults. Bypass times out after two hours. Countdown visible on Home screen. If more time required, remove and replace FLT BYPASS jumper (in BYPASS position).
  - JP5, PGM SOURCE: Factory use only. Leave in default position.
  - JP6, EDGE/ENCODER: If the installation uses the MCE LS-EDGE-EL landing system, set to 1. Otherwise set to -.
  - JP7, EDGE/ENCODER: If the installation uses the MCE LS-EDGE-EL landing system, set to 0. Otherwise set to +.
  - JP8, PGM SOURCE: Factory use only. Leave open.
  - JP9, ENCODER INTERFACE: Normally closed.
  - JP10, A/B: Set at MCE depending upon the serial drive interface required -  
A = TORQMAX/KEB  
B = MAGNETEK
  - JP11, ENCODER INTERFACE: Normally closed
  - JP12, CAN termination, CAN3: A = terminated, B = unterminated. Used to terminate hall call bus CAN3 at the last controller in a duplex installation or the ONLY controller in Simplex installations.



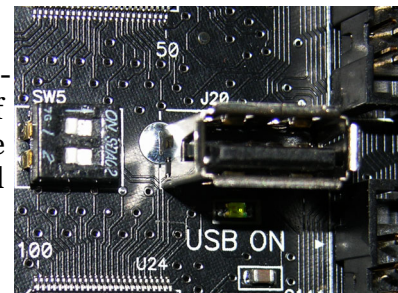
## Configuration and Troubleshooting

- CPU DIP Switches:
  - 8-position DIP switch S2 is set according to the type of serial PI fixtures on the job (CE/E-Motive). For CE fixtures all switches should be in the ON position (left). The number 1 switch (lower) may be placed in the OFF position to start a CE fixture self-test. The test exercises all of the characters potentially displayed on the fixture and is viewed on the fixture itself. For E-Motive fixtures all switches should be in the OFF position (right).
  - 2-position DIP switch SW5 is used to update system software. Leave in OFF (left) positions unless updating software. See [“Updating System Software” on page 2- 38.](#)
- Testpoints: ( [“SCE-CPU Testpoints and Jumpers” on page 2-39](#))

**Updating System Software** System software updates are initiated using two-position DIP switch SW5 on the SCE-CPU board. Before updating, the system first checks for a USB drive in the CPU board USB port. If the update USB drive is present, the system will copy the software from the USB to the micro-SD card, replacing the current version files on the card. The system will then update from the stored file on the SD as directed by the DIP switches.

1. Place the car on Inspection and remove power to the controller. If this installation is a duplex, also remove power to the other car. Power should be applied to **only** the car for which software is being updated.
2. If you are updating from a USB drive, insert it into the USB port on the SCE-CPU board.
3. Position the DIP switches to direct the update:
  - Both switches ON (right): Update all system devices regardless of existing software version.
  - Switch 1 (top) ON, Switch 2 (bottom) OFF: Update only when source file is different from existing.
4. Restore power to the controller. The process will begin, either copying USB files first or immediately beginning the update from the SD card.

Depending on how many files are on the USB, there may be a delay of around thirty seconds before copying begins. Update time depends on the number of devices being updated but is generally about 15 minutes. The touchscreen keeps you apprised of what is happening but it will go blank for a few minutes while the display processor itself is updating. (The SPC processor LED will flash while the screen is blank to assure you that the process is continuing properly. Each blink = 3% complete.)



5. When updating is complete, the touchscreen will tell you to place both switches on the DIP switch back to the OFF position to resume normal operation.

If new LCD graphics are available, the graphics file will be copied to the display processor as part of the startup sequence.

6. Take car off Machine Room Inspection.

### Note

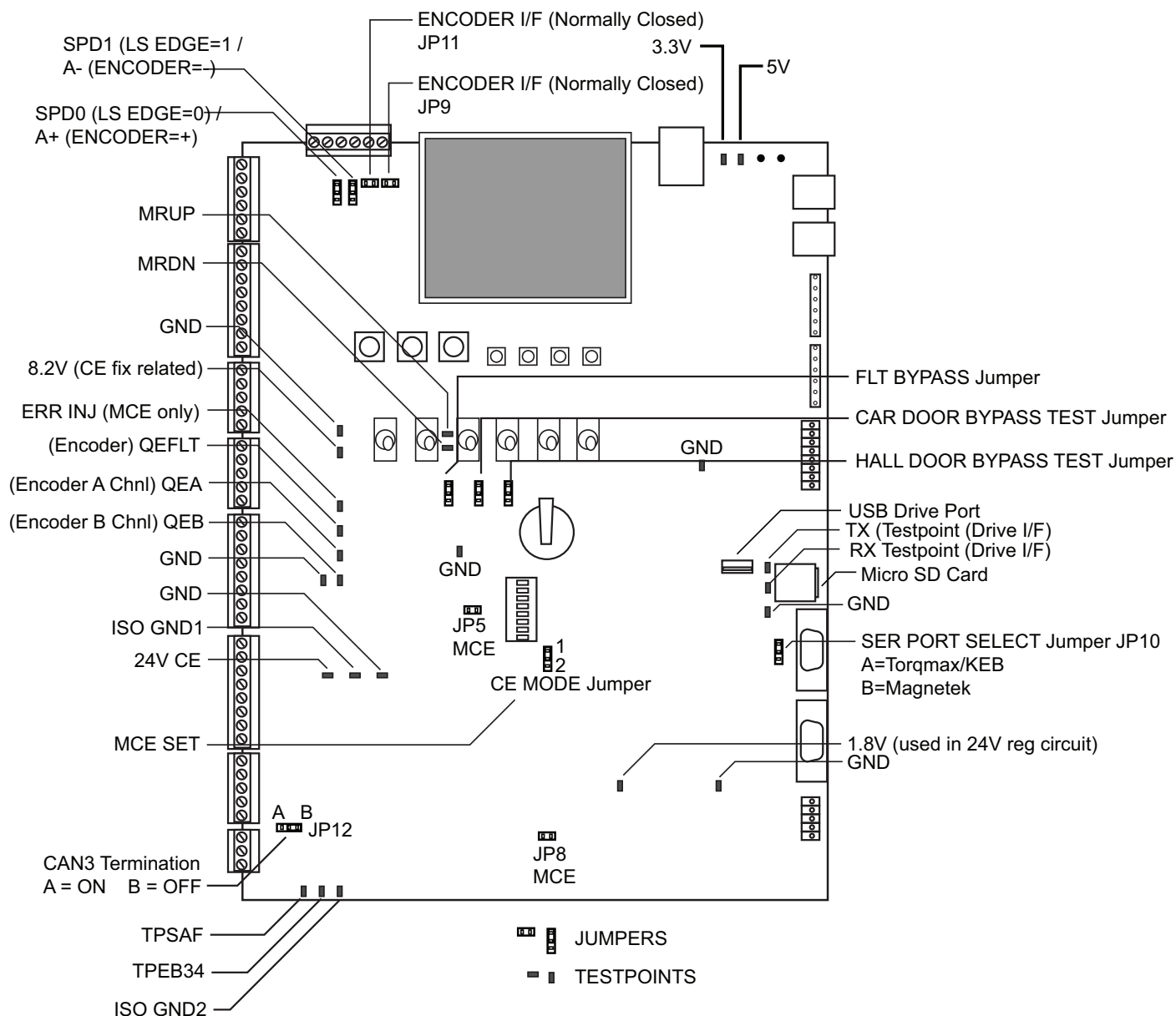
Leave the USB drive in place until the system is fully operational (graphics have completed loading).



## Replacing the SCE-CPU Board

Before removing the SCE-CPU board, be sure to copy the current parameter settings (backup) to a USB drive (thumb drive) [see “USB Parameter Transfer” on page 2-25](#). Once the SC-CPU board has been replaced, the parameter settings can be uploaded (transferred from the USB drive to the new board), thereby saving setup time.

**Figure 2.8 SCE-CPU Testpoints and Jumpers**



## Configuration and Troubleshooting

**Table 2.10 CPU Connector Assignments**

| Connector | Assignment    | Description                                                                                                                                                                                        |
|-----------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| J3        | RGOK          | Hydraulic: Thermal overload and/or oil tank temp shutdown input.<br>Traction: Rope Gripper OK (not set) input.<br>OK = 24V. Triggered = 0V.                                                        |
| J3        | +24V          | +24V supply output for use with RGOK.                                                                                                                                                              |
| J3        | L24V          | +24V supply output for use with counterweight derailment detection.                                                                                                                                |
| J3        | 1             | Common                                                                                                                                                                                             |
| J3        | FRA           | Main landing smoke/fire sensor input. Recall to alternate floor.                                                                                                                                   |
| J3        | FRS           | Smoke/fire sensor for all landings but the main landing. Recall to main floor.                                                                                                                     |
| J3        | FRSA          | Fire Service Alternate initiating device, machine room input. Recall to alternate floor.                                                                                                           |
| J3        | FRSM          | Fire Service Main initiating device. Recall to main floor.                                                                                                                                         |
| J4        | MCE TEST      | Do not use.                                                                                                                                                                                        |
| J5        | ICEN/IN1      | In car inspection enable / programmable input. See job prints. If the CONFIG01, Building Setup in-car inspection option is set to Yes, this input may only be used for in-car inspection Enable.   |
| J5        | ICPU/IN2      | In car inspection UP input / programmable input. See job prints. If the CONFIG01, Building Setup in-car inspection option is set to Yes, this input may only be used for in-car inspection Up.     |
| J5        | ICPD/IN3      | In car inspection DOWN input / programmable input. See job prints. If the CONFIG01, Building Setup in-car inspection option is set to Yes, this input may only be used for in-car inspection Down. |
| J5        | IN4           | Programmable input. See job prints.                                                                                                                                                                |
| J5        | IN5           | Programmable input. See job prints.                                                                                                                                                                |
| J5        | IN6           | Programmable input. See job prints.                                                                                                                                                                |
| J5        | IN1H          | Earthquake sensor input. See job prints.                                                                                                                                                           |
| J5        | IN2H          | Earthquake sensor input. See job prints.                                                                                                                                                           |
| J6        | 1 (pin 1)     | Common. Serial fixtures to CAR.                                                                                                                                                                    |
| J6        | +24 (pin 2)   | 24V. Serial fixtures to CAR.                                                                                                                                                                       |
| J6        | CDATA (pin 3) | Data. Serial fixtures to CAR.                                                                                                                                                                      |
| J6        | 1 (pin4)      | Common. Serial fixtures to HALL.                                                                                                                                                                   |
| J6        | +24V (pin 5)  | 24V. Serial fixtures to HALL.                                                                                                                                                                      |
| J6        | HDATA (pin 6) | Data. Serial fixtures to HALL.                                                                                                                                                                     |
| J7        | CAN, modular  | See job prints. May be used with MC-CPI-2 board for extra I/O in cabinet.                                                                                                                          |
| J8        | CAN, modular  | See job prints.                                                                                                                                                                                    |
| J9        | SHLD          | Shield connection, landing system/hoistway encoder                                                                                                                                                 |
| J9        | B-            | Quadrature B-, hoistway encoder                                                                                                                                                                    |
| J9        | B+            | Quadrature B+, hoistway encoder                                                                                                                                                                    |
| J9        | A-/SPD1       | Quadrature A- (encoder) or SPD1 from LS-EDGE-EL                                                                                                                                                    |
| J9        | A+/SPD0       | Quadrature A+ (encoder) or SPD0 from LS-EDGE-EL                                                                                                                                                    |
| J9        | DZ            | Door Zone, input                                                                                                                                                                                   |
| J10       | INA           | Access Enable                                                                                                                                                                                      |
| J10       | ATU           | Top Access, UP direction input                                                                                                                                                                     |
| J10       | ATD           | Top Access, DOWN direction input and down access limit                                                                                                                                             |
| J10       | ABU           | Bottom Access, UP direction input and up access limit                                                                                                                                              |
| J10       | ABD           | Bottom Access, DOWN direction input                                                                                                                                                                |
| J11       | CTEN          | Car top inspection enable input                                                                                                                                                                    |
| J11       | INCP          | In car inspection/normal input                                                                                                                                                                     |

**Table 2.10 CPU Connector Assignments**

| Connector | Assignment | Description                                                       |
|-----------|------------|-------------------------------------------------------------------|
| J11       | ICTU       | Car top inspection UP button input                                |
| J11       | ICTD       | Car top inspection DOWN button input                              |
| J11       | INCT       | Car top inspection/normal input                                   |
| J27       | SD MICRO   | Port for SD card event storage.                                   |
| J13       | IO1 - IO8  | Programmable Input/Outputs. See job prints.                       |
| J14       | ETHERNET   | Ethernet port. Web App configuration/per job use. See job prints. |
| J15       | PLD JTAG   | MCE use only.                                                     |
| J16       | SHLD       | CAN shield connection.                                            |
| J16       | CANL1      | CAN connection 1, Low                                             |
| J16       | CANH1      | CAN connection 1, High                                            |
| J16       | CANL2      | CAN connection 2, Low                                             |
| J16       | CANH2      | CAN connection 2, High                                            |
| J17, MCE  | FLPC       | Fan/Light power control output                                    |
| J17, MCE  | CTPR       | Cartop box power control output                                   |
| J17, MCE  | LOPM       | 24V power monitor                                                 |
| J17, MCE  | 1          | Common                                                            |
| J17, MCE  | 24VDC      | 24VDC                                                             |
| J18       | CANL3      | CAN connection 3, Low                                             |
| J18       | CANH3      | CAN connection 3, High                                            |
| J18       | SHLD       | CAN shield connection.                                            |
| J19, MCE  | PMP        | Primary motor contactor                                           |
| J19, MCE  | BRP        | Brake contactor                                                   |
| J19, MCE  | CONFIG     | Door lock string configuration input.                             |
| J19, MCE  | 24VDC      | 24VDC output                                                      |
| J19, MCE  | TR_HY      | Traction/Hydro default determination.                             |
| J19, MCE  | 1          | Common                                                            |
| J20       | USB        | USB drive port                                                    |
| J21, MCE  | MCE TEST   | Do not use.                                                       |
| J22, MCE  | +24VINT    | 24V power for 12V source on Brake Board                           |
| J22, MCE  | GND        | Ground for 12V source on Brake Board                              |
| J22, MCE  | BRPK       | Brake pick control                                                |
| J22, MCE  | BREDC      | Brake enable DC                                                   |
| J22, MCE  | BRFLT      | Brake fault                                                       |
| J22, MCE  | MPSBR      | Power Supply/Brake Enable Monitor                                 |
| J22, MCE  | BRRLV      | Brake Relevel Control                                             |
| J22, MCE  | NC         | No Connection                                                     |
| J23, MCE  | MCE TEST   | Do not use.                                                       |
| J24, MCE  | Serial     | Drive serial control                                              |
| J25, MCE  | DRCOM      | Drive Common                                                      |
| J25, MCE  | DRE        | Drive Enable                                                      |
| J25, MCE  | DPS-       | Drive power supply negative                                       |
| J25, MCE  | DPS+       | Drive power supply positive                                       |
| J25, MCE  | DRDY       | Drive Ready input                                                 |
| J25, MCE  | DRO        | Drive On input                                                    |
| J25, MCE  | DFLT       | Drive fault input                                                 |
| J25, MCE  | GND        | Ground                                                            |
| J26, MCE  | Serial     | Drive serial control                                              |

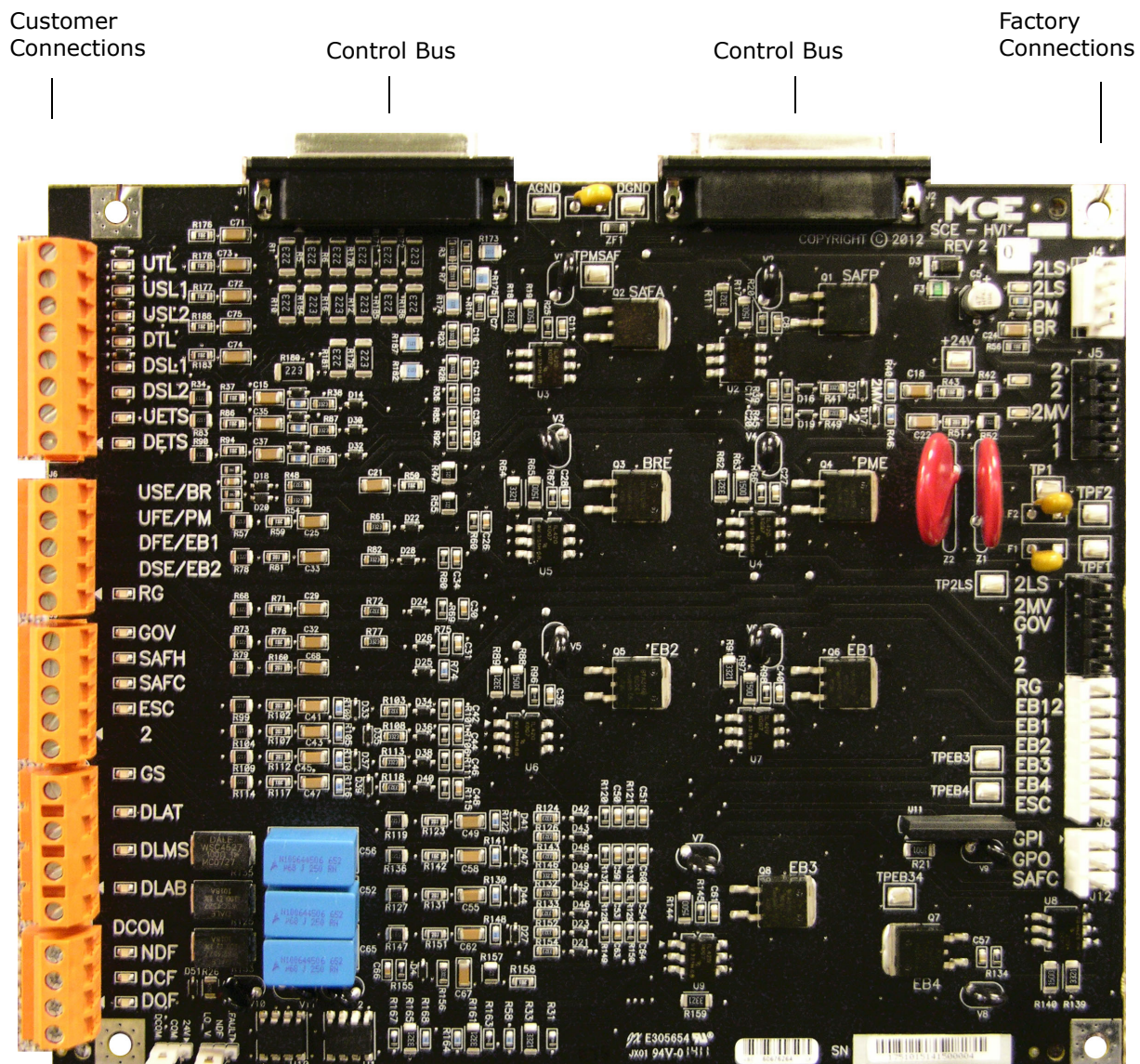


## Configuration and Troubleshooting

### SCE-HVI

The SCE-HVI board provides a control and input interface to components operating at higher voltages.

**Figure 2.9 SCE-HVI Board**





**Table 2.11 HVI Connector Assignments**

| Connector | Assignment | Description                                                                                                                                             |
|-----------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| J3        | UTL        | Up Terminal Limit input, lighted when switch is closed                                                                                                  |
| J3        | USL1       | Up Slow Limit 1 input, lighted when switch is closed                                                                                                    |
| J3        | USL2       | Up Slow Limit 2 input, lighted when switch is closed                                                                                                    |
| J3        | DTL        | Down Terminal Limit input, lighted when switch is closed                                                                                                |
| J3        | DSL1       | Down Slow Limit 1 input, lighted when switch is closed                                                                                                  |
| J3        | DSL2       | Down Slow Limit 2 input, lighted when switch is closed                                                                                                  |
| J3        | UETS       | Up Emergency Terminal Switch input, lighted when switch is closed                                                                                       |
| J3        | DETS       | Down Emergency Terminal Switch input, lighted when switch is closed                                                                                     |
| J4, MCE   | 2LS        | 2LS 110VAC input, MCE                                                                                                                                   |
| J4, MCE   | 2LS        | 2LS 110VAC input, MCE                                                                                                                                   |
| J4, MCE   | PM         | Motor Contactor power, MCE                                                                                                                              |
| J4, MCE   | BR         | Brake Contactor power, MCE                                                                                                                              |
| J5, MCE   | 2          | 2 bus, 110VAC input, MCE                                                                                                                                |
| J5, MCE   | 2          | 2 bus, 110VAC input, MCE                                                                                                                                |
| J5, MCE   | 2MV        | 2MV bus, 110VAC input, MCE                                                                                                                              |
| J5, MCE   | 1          | Common, MCE                                                                                                                                             |
| J5, MCE   | 1          | Common, MCE                                                                                                                                             |
| J6        | USE/BR     | Up Slow Enable output (pulls to ground when valve is activated), active when power is on (110VAC)/BR is brake contactor output for traction application |
| J6        | UFE/PM     | Up Fast Enable output (pulls to ground when valve is activated), active when power is on (110VAC)/PM is motor contactor output for traction application |
| J6        | DVE/EB1    | Down Fast Enable output (pulls to ground when valve is activated), active when power is on (110VAC)/EB1 is emergency brake output for traction          |
| J6        | DSE/EB2    | Down Slow Enable output (pulls to ground when valve is activated), active when power is on (110VAC)/EB2 is emergency brake output for traction          |
| J6        | RG         | Rope Gripper (Not Used in hydraulic applications)                                                                                                       |
| J7, MCE   | 2LS        | 2LS bus, 110VAC                                                                                                                                         |
| J7, MCE   | 2MV        | 2MV bus, 110VAC                                                                                                                                         |
| J7, MCE   | GOV        | Governor switch                                                                                                                                         |
| J7, MCE   | 1          | Common                                                                                                                                                  |
| J7, MCE   | 2          | 110VAC                                                                                                                                                  |
| J8, MCE   | RG         | Rope Gripper                                                                                                                                            |
| J8, MCE   | EB12       | Emergency Brake                                                                                                                                         |
| J8, MCE   | EB1        | Emergency Brake                                                                                                                                         |
| J8, MCE   | EB2        | Emergency Brake                                                                                                                                         |
| J8, MCE   | EB3        | Emergency Brake                                                                                                                                         |
| J8, MCE   | EB4        | Emergency Brake                                                                                                                                         |
| J8, MCE   | ESC        | Emergency stop switch bypass                                                                                                                            |
| J9        | GOV        | Governor, lighted when overspeed switch is closed                                                                                                       |
| J9        | SAFH       | Safety string Hoistway, lighted when string is made (110VAC)                                                                                            |
| J9        | SAFC       | Safety string Car, lighted when string is made (110VAC)                                                                                                 |
| J9        | ESC        | Emergency Switch Car, lighted when switch is closed (110VAC)                                                                                            |
| J9        | 2          | 2bus 110VAC                                                                                                                                             |

## Configuration and Troubleshooting

**Table 2.11 HVI Connector Assignments**

| Connector | Assignment | Description                                                                                                             |
|-----------|------------|-------------------------------------------------------------------------------------------------------------------------|
| J10       | GS         | Gate Switch input, lighted when string is closed (110VAC)                                                               |
| J10       | DLAT       | Door Lock Top string input, lighted when string is closed (110VAC)                                                      |
| J10       | DLMS       | Door Lock Middle String input, lighted when string is closed (110VAC)                                                   |
| J10       | DLAB       | Door Lock Bottom string input, lighted when string is closed (110VAC)                                                   |
| J11       | DCOM       | Common voltage provided for NDF, DCF, and DOF signals. <a href="#">See "Door Operator Compatibility" on page 2- 44.</a> |
| J11       | NDF        | Nudging Front                                                                                                           |
| J11       | DCF        | Door Close Function                                                                                                     |
| J11       | DOF        | Door Open Function                                                                                                      |
| J12, MCE  | GPI        | *General Purpose (In)                                                                                                   |
| J12, MCE  | GPO        | *General Purpose (Out)                                                                                                  |
| J12, MCE  | SAFC       | Car safety string                                                                                                       |

\*GPI/GPO, if used, will be shown in the prints for the job. They may be used for cycle testing or for other purposes.

**Table 2.12 HVI Testpoints**

| TP     | Use                  |
|--------|----------------------|
| AGND   | Analog ground        |
| DGND   | Digital ground       |
| TPMSAF | MSAF monitor voltage |
| +24V   | +24V                 |
| TP1    | Common               |
| TP2LS  | 2LS Bus              |
| TPEB3  | Emergency brake      |
| TPEB4  | Emergency brake      |
| TPEB34 | Emergency brake      |

**Door Operator Compatibility** Typically, the voltage used for J11, front door Nudging, Door Close, and Door Open outputs is the voltage connected from an external reference to J11 DCOM (usually from the door operator itself - according to your job prints). This configuration may be changed through HVI board jumper JP1. The Nudging output may also be independently configured through jumper JP2.

**Table 2.13 Door Operator Signal Control**

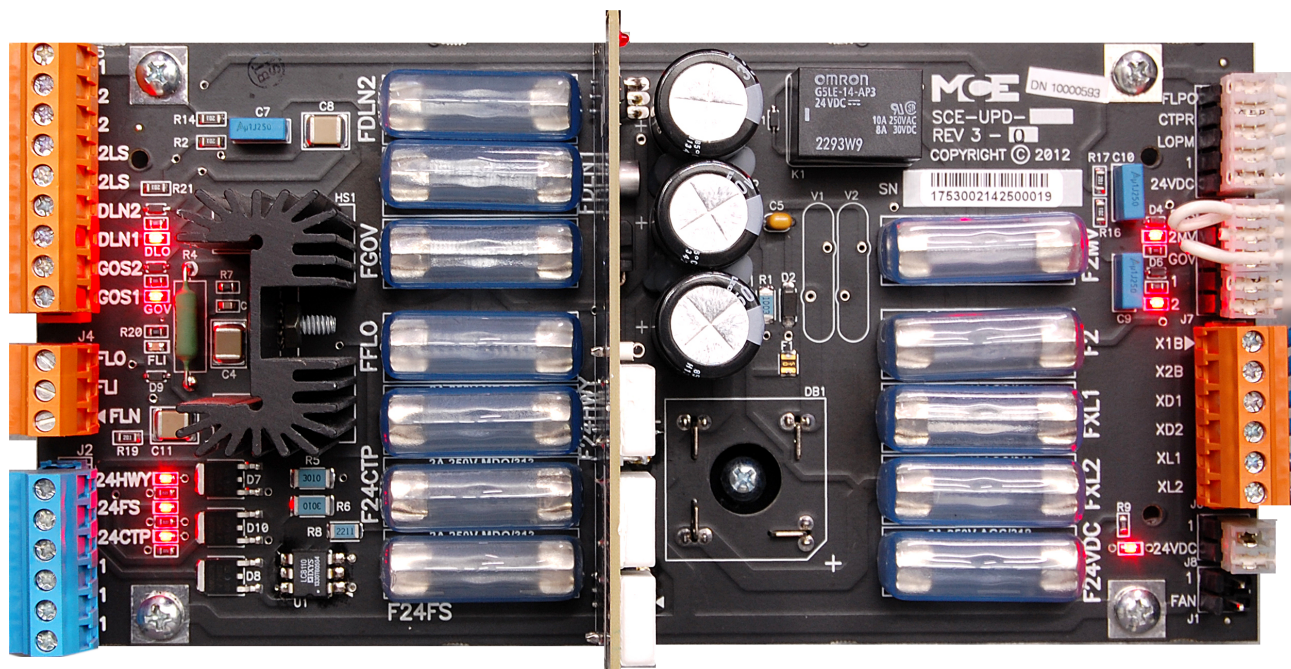
| Jumper Setting     | Result                                                                                                                         |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------|
| JP1 COM to DCOM    | The J11 connector control voltages are the same as the voltage at DCOM.                                                        |
| JP1 COM to 24V     | The J11 connector control voltages are set to +24V. This jumper may be used rather than connecting 24V to the DCOM connection. |
| JP2 NDF to DEFAULT | The Nudging voltage is the same as the voltage selected by JP1.                                                                |
| JP2 NDF to LO_V    | 12V Nudging to door operator                                                                                                   |



## SCE-UPD

The SCE-UPD board provides power distribution to various boards and components.

**Figure 2.10 SCE-UPD Board**



**Table 2.14 UPD Connector Assignments**

| Connector | Assignment | Description                                            |
|-----------|------------|--------------------------------------------------------|
| J1        | 1          | Common                                                 |
| J1        | FAN        | 120VAC supply                                          |
| J2        | 24HWY      | 24V hoistway supply                                    |
| J2        | 24FS       | 24V hoistway supply                                    |
| J2        | 24CTP      | 24V cartop supply                                      |
| J2        | 1          | Common (x3 pins)                                       |
| J3        | FLPC       | Fan/light power control input from SCE-CPU             |
| J3        | CTPR       | 24V CTPWR power relay, 24CTP/24HWY                     |
| J3        | LOPM       | Monitor, loss of 24VAC from transformer (24VDC supply) |
| J3        | 1          | Common                                                 |
| J3        | 24VDC      | 24VDC supply                                           |
| J4        | FLN        | 120VAC lighting/fan power output neutral               |
| J4        | FLI        | 120VAC lighting/fan power output                       |
| J4        | FLO        | Fan, Light control to cartop                           |
| J5        | 1          | Common.                                                |
| J5        | 2          | Primary 120VAC bus.                                    |
| J5        | 2          | Primary 120VAC bus.                                    |
| J5        | 2LS        | 120VAC, valves                                         |
| J5        | 2LS        | 120VAC, valves                                         |
| J5        | DLN2       | Fused line output to door operator                     |
| J5        | DLN1       | Fused line output to door operator                     |

## Configuration and Troubleshooting

**Table 2.14 UPD Connector Assignments**

| Connector | Assignment | Description                          |
|-----------|------------|--------------------------------------|
| J5        | GOS2       | Governor overspeed circuit           |
| J5        | GOS1       | Governor overspeed circuit           |
| J6        | X1B        | Common from transformer              |
| J6        | X2B        | 120VAC from transformer              |
| J6        | XD1        | L1 input (or LA from HAPS unit)      |
| J6        | XD2        | L2 input (or LB from HAPS unit)      |
| J6        | XL1        | 20VAC input from transformer         |
| J6        | XL2        | 20VAC input from transformer         |
| J7        | 2LS        | 120VAC, valves                       |
| J7        | 2MV        | 120VAC monitor voltage               |
| J7        | GOV        | 120VAC for governor overspeed switch |
| J7        | 1          | Common                               |
| J7        | 2          | 120VAC Bus                           |
| J8        | 1          | Common                               |
| J8        | 24VDC      | Fused 24VDC output                   |

**Table 2.15 UPD Bus Protection**

| Bus    | Use                         | Fuse                                 |
|--------|-----------------------------|--------------------------------------|
| FDLN2  | Door operator               | 4A, 250V Bussman MDQ/Littelfuse 313  |
| FDLN1  | Door operator               | 4A, 250V Bussman MDQ/Littelfuse 313  |
| FGOV   | Governor                    | 4A, 250V Bussman MDQ/Littelfuse 313  |
| FFLO   | 120VAC car lighting and fan | 6A, 250V Bussman AGC/Littelfuse 312  |
| F24FS  | 24V, Fire Signal            | 2A, 250V Bussman MDQ/Littelfuse 313  |
| F24HWY | 24VDC hoistway              | 2A, 250V Bussman MDQ/Littelfuse 313  |
| F24CTP | 24VDC cartop                | 2A, 250V Bussman MDQ/Littelfuse 313  |
| F2MV   | 120VAC monitor              | 3A, 250V Bussman MDQ/Littelfuse 313  |
| F2     | 120VAC Bus                  | 2A, 250V Bussman AGC/Littelfuse 312  |
| FXL1   | 20VAC transformer           | 10A, 250V Bussman AGC/Littelfuse 312 |
| FXL2   | 20VAC transformer           | 10A, 250V Bussman AGC/Littelfuse 312 |
| F24VDC | 24VDC to SCE-CPU            | 6A, 250V Bussman AGC/Littelfuse 312  |

## Solid State Starter

The solid state starter is the interface between the controller and the pump motor. The starter is compatible with  $\frac{1}{3}/6$  or 9/12 lead motors. The connections between the starter and the motor are shown in the prints for the particular job.

The Element controller will display fault conditions related to the starter. (See [Event and Fault Message Descriptions on page 2-48](#).) When a starter-related fault is displayed on the controller, the related fault condition is probably displayed on the starter LCD as well.

Many times, starter faults are caused by loose connections. As a general rule, when one of these faults occurs, make it a habit to check connections first.

Both this manual and the manual for the starter provide troubleshooting information for faults displayed by that device (controller/starter). See [Event and Fault Message Descriptions on page 2-48](#) for controller faults. See the starter manufacturer manual for detailed starter troubleshooting information.



### Danger

Always observe safety precautions when working with starter wiring. Lethal voltages are present.

- 
1. If the controller is ordered from MCE for a specific job, the data or survey form filled out by the customer specifies motor wiring and the starter is appropriately configured at the factory. If the controller was provided by an intervening source, be certain that the provider has correctly configured the starter and that the correct connections are shown on the job prints. If in doubt, refer to the manual provided by the starter manufacturer and contact the controller provider.

## Configuration and Troubleshooting

### Event and Fault Message Descriptions

The following list of Events will most often reference computer flags monitored by the various processors. When reading the event description, take note of the flags listed. We recommend that you look to the prints to locate the referenced flags. For example, the OBD (on board display touch screen) may display MSAF Input Failure. The Event description asks that we use the diagnostics to verify the status of 2MV, SAFF, and SAFFB.

Following the above example, look at page 5 of the wiring prints. In the left margin, is a symbol with the name M2MV. A left pointing symbol is an input. Note that there is a smaller text block that reads SPB. This smaller block indicates that Safety Processor B monitors this input. The next step is to take a look at Safety Processor B diagnostics by using the OBD to find the tab labeled SPB DIAG.

- Touch tab SPB DIAG.
- Select SPB INPUTS.
- Scroll to the M2MV.B flag.

We often notate this process using the following sequence: SPB DIAG > SPB Inputs > M2MV.B.

Again using the given example and looking at flag M2MV.B; if the associated flag has an illuminated “LED”, we expect the input to be ON. In this case, we would expect to find 120VAC on the SCE-HVI board IDC terminal labeled 2MV. Conversely, if the LED was off, we would expect to find zero volts on the IDC. (IDC stands for an Insulation Displacement Connector as opposed to a screw terminal.)

Input Mismatch Faults: During safety redundancy checking, Safety Processors and the PLD will compare the states of safety related inputs. If there is a mismatch, a fault will be issued, i.e., “DLT Input Mismatch.” In the following table, these are grouped together as a “nnn’ Input Mismatch in the first listing. “nnn” Redundancy Faults are likewise grouped in the second table listing.

**Table 2.16 Touch Screen Event Listings**

| Event                    | Description                                                                                                                                                                                                                                                                 |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 Bus is Low (131)       | 2 Bus (120VAC) monitoring input is low. Cannot be bypassed.<br>1. Check fuse F2 on SCE-UPD board.<br>2. Verify 120VAC across terminals X1B and X2B on the SCE-UPD.                                                                                                          |
| Alive Input Low (387)    | The controller has detected that the Alive input from the other car in a duplex pair has gone low, indicating the other car is no longer operating properly.                                                                                                                |
| Aux Power: Complete (52) | The car has completed lowering/recall under auxiliary power (HAPS/TAPS). Cannot be bypassed.<br>System Verifies:<br>- Aux Power Data = APS Recall Done<br>- APS Done output true<br>Correction:<br>1. If in error, verify the status of the spare input programmed for APS. |

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Aux Power: Fail (53)          | The car has failed to recall under auxiliary power. Fault-bypassed in Construction/Inspection.<br>System Verifies:<br>- Aux Power Data = APS Recall Fail<br>Correction:<br>1. Verify car is not obstructed. Verify doors closed.<br>2. Check function of HAPS or TAPS unit.                                                                                                                 |
| Aux Power: Fire I (50)        | The car is in fire recall mode and on auxiliary power. Cannot be bypassed.<br>System Verifies:<br>- State of fire recall input<br>- Aux Power Data = APS Fire Recall On<br>- Mode of operation is not OpModeFireII<br>Correction:<br>1. If in error, verify the status of the fire recall related inputs.                                                                                   |
| Aux Power: Fire II (51)       | The car is on in-car firefighter mode and is recalling on auxiliary power. Cannot be bypassed.<br>System Verifies:<br>- Aux Power Data = APS Fire Recall On<br>- Mode of operation = Fire II<br>Correction:<br>1. If in error, verify the in-car firefighter switch wiring.                                                                                                                 |
| Aux Power: Recall (49)        | The car is recalling under auxiliary power, i.e., a battery powered lowering device. Cannot be bypassed.<br>System Verifies:<br>- State of input<br>- Aux Power data = APS Recall On<br>Correction:<br>1. If in error, verify no input programmed for this function.<br>2. Otherwise, verify status of input and input device.<br>3. Verify input wiring.                                   |
| BBRAM Read Error (263)        | System has detected a Battery Backed RAM read error. Cannot be bypassed.<br>Correction:<br>1. Cycle power and recheck.                                                                                                                                                                                                                                                                      |
| BBRAM Write Error (262)       | System has detected a Battery Backed RAM write error. Cannot be bypassed.<br>Correction:<br>1. Cycle power and recheck.                                                                                                                                                                                                                                                                     |
| Bootload Switches On (434)    | Informational.<br>Correctional:<br>1. If in error, verify that SCE-CPU DIP SW5 switches are in off (left) position.                                                                                                                                                                                                                                                                         |
| Bottom Deviation (Edge) (220) | LS-EDGE-EL encountered terminal magnets that do not match learned positions. Fault bypassed in Construction/Inspection.<br>System Verifies:<br>- Learned versus current-read magnet locations do not match within an acceptable tolerance.<br>Correction:<br>1. Verify magnets for terminals have not been changed.<br>2. Relearn terminal magnets location by performing a hoistway learn. |



## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Capture Mode (4)              | The controller is in Capture Mode. In this mode the elevator will not accept hall calls but will answer car calls. The intent is to service existing passengers until the car is idled at a floor and is available for maintenance or test. Fault bypassed in Construction/Inspection.<br>System Verifies:<br>- Mode of operation = Capture<br>Correction:<br>1. Check that the Test switch is not in the Pretest position. |
| Car Calls Disabled (353)      | Car calls have been disabled. Typically caused by car operation in a mode or during a fault condition in which car calls are not active.<br>Correction:<br>1. If in error, check Home screen to see what mode of operation is displayed and if any faults are displayed.<br>2. Troubleshoot the active mode and/or fault condition.                                                                                         |
| Car Delayed Door Closed (319) | The car has been delayed in answering a registered call while the doors are closed. Informational. Fault-bypassed in Construction.<br>Correction -<br>1. Check the Car Delayed Timer setting. It might be too short.<br>2. Check for any faults that might be preventing the car from moving in a timely manner.                                                                                                            |
| Car Delayed Door Open (39)    | The car has been delayed in answering a registered call while the doors are open. Informational. Fault-bypassed in Construction.<br>Correction -<br>1. Check the Car Delayed Timer setting. It might be too short.<br>2. Check for any faults that might be preventing the car from moving in a timely manner.                                                                                                              |
| Car Hold (445)                | The car is on hold and not allowed to move. Used for the EMS Hold function initiated when the car is on in-car EMS mode and the in-car EMS switch is deactivated while the car is away from the EMS floor.                                                                                                                                                                                                                  |
| Car Stop Sw Bypassed (310)    | The car stop switch is being bypassed. Normally due to PH1 Fire.                                                                                                                                                                                                                                                                                                                                                            |
| Car Stop Sw On (2)            | Car stop switch input active. If moving, the car will perform an emergency stop. Doors will not be allowed to move. The event will end when the switch is returned to the off position.<br>Correction:<br>1. If in error, troubleshoot the SAFC input and the switch.                                                                                                                                                       |
| Car Stop Sw on Re-Level (318) | Car stop switch activated during releveling. Car will complete releveling. Doors remain operational. Informational event. Resets when switch returned to Off position.                                                                                                                                                                                                                                                      |
| Cartop Construct/Bypass (316) | Car Panel inspection is active and one or both of the Car/Hoistway Door Bypass switches is in the Bypass position. Cannot be bypassed.<br>System Verifies:<br>- ModeofOperation = OpModeInspectionBPCP<br>Correction:<br>Turn off one or both of the Car/Hoistway Door Bypass switches.                                                                                                                                     |
| Cartop Construction (55)      | The car is on construction operation and is being operated from the cartop inspection station. Cannot be bypassed.<br>System Verifies:<br>- Mode of Operation = Construction CT<br>Correction:<br>1. Exit construction operation ( <a href="#">Construction Operation on page 1-8</a> ).                                                                                                                                    |



**Table 2.16 Touch Screen Event Listings**

| Event                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cartop Insp./Bypass (127)      | Cartop inspection is active and one or both of the Car/Hoistway Door Bypass switches is in the Bypass position. Cannot be bypassed.<br>System Verifies:<br>- ModeofOperation = OpModeInspectionBPCT<br>Correction:<br>Turn off one or both of the Car/Hoistway Door Bypass switches.                                                                                                                                                                                                                                        |
| Cartop Inspection (59)         | The car is on Cartop Inspection mode. Cannot be bypassed.<br>System Verifies:<br>- Mode of Operation = Inspection CT<br>Correction:<br>1. If in error, verify cartop inspection inputs. 24VDC at INCT disables car top inspection.                                                                                                                                                                                                                                                                                          |
| CDB Switch Fault (328)         | Generated when the CDB and CDBO inputs are in the same state indicating a possible failure of the car door bypass switch.<br>Correction:<br>1. Toggle the car door bypass switch and verify that the diagnostic LEDs for the switch also toggle (CDB, CDBO). PLD Inputs, screen 1.<br>2. Verify that the CDBTST jumper is inserted in the OFF position.                                                                                                                                                                     |
| Cell Battery Volts Low (374)   | Low SCE-CPU battery voltage. Battery backs-up run time parameters. Informational. Replace battery.                                                                                                                                                                                                                                                                                                                                                                                                                          |
| CFG Err: 2-Stop Config (268)   | Generated when a car is set to be a two stop installation and the CONFIG terminal is low (0V). Alternatively, when the car is set to be more than two stops and the CONFIG terminal is high (+24V). Also generated if both the CONFIG terminal and the DLMS terminal are high (+24V). Cannot be bypassed.<br>Correction:<br>1. Verify top and bottom floor settings in the Building Setup menu.<br>2. Check voltage at the CONFIG terminal matches the settings.<br>3. Check voltage at the DLMS terminal matches settings. |
| CFG Err: Car Panel Insp (269)  | User defined car panel inspection settings and car panel inspection hardware configuration do not match. Cannot be bypassed.<br>Correction:<br>1. Verify touch screen settings against job prints.<br>2. Verify actual installation against job prints.                                                                                                                                                                                                                                                                     |
| CFG Err: Controller Type (267) | The user defined controller type (Traction/Hydraulic) does not match the hard wired default at SCE-CPU input TR_HY. (TR_HY at ground for traction applications; TR_HY at 24VDC for hydraulic applications.) Cannot be bypassed.<br>Correction:<br>1. Verify correct controller type on touch screen (CONFIG 01 > Building Setup > Controller Type).<br>2. Verify state of SCE-CPU board TR_HY input (IDC, upper right edge of SCE-CPU board). If not in accordance with description above, contact MCE.                     |
| CFG Err: Hoist. Access (270)   | User defined hoistway access settings and the access hardware configuration do not match. Cannot be bypassed.<br>Correction:<br>1. Hoistway access option set to disabled and one of the access inputs (INA, ATU, ATD, ABU, ABD) is active.<br>2. Hoistway access option set to bottom and one of the top access inputs (ATU, ATD) is active.<br>3. Hoistway access option set to top and one of the bottom access inputs (ABU, ABD) is active.                                                                             |



## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CFG Err: Invalid Floor (426)  | An invalid floor has been programmed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| CFG Err: Landing System (427) | Configured and actual landing system do not match.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Commercial Power Loss (381)   | Appears in the event log if commercial power is lost. Informational.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Compliance Test Active (419)  | A compliance/safety test has been initiated but is not yet completed.<br>Correction:<br>1. Complete or abort the test.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Construction Invalid (98)     | The car is in construction operation but controller switches or inputs are in states not valid in construction operation. If stopped, the car will not leave the floor. If in motion, the car will stop at the next floor and shut down. The fault must be manually cleared before operation resumes. Cannot be bypassed.<br>System Verifies:<br>- Mode of Operation = Construction Invalid<br>Correction:<br>1. To exit construction operation see <a href="#">Construction Operation on page 1-8</a> .                                                                                                                                         |
| Copying Files to USB (440)    | Files are being copied from the USB drive to the SD-RAM card.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| CP Ins Stuck Input (92)       | Car Panel Inspection Enable, Up, and Down inputs are monitored in all modes of operation. This fault is asserted if any of the three is high when the car is on Automatic mode or is detected as stuck during Inspection mode. This fault does not affect car behavior on Inspection mode. On Automatic modes, the car is allowed to answer its first call. The CP Ins Stuck Input Flt is then asserted if the car is already at a floor or has reached a floor. See description below. Fault-bypassed in Construction.<br>Correction:<br>1. Check all car panel inspection related inputs, switches, and wiring (SCE-CPU ICEN, ICPU, and ICPD). |
| CP Ins Stuck Input Flt (93)   | A stuck Car Panel Inspection input has been asserted (see description above) and the car is already at a floor or has reached a floor. The doors open to release passengers and the car removes itself from service. Fault bypassed in Construction mode.<br>Correction:<br>1. Check all car panel inspection related inputs, switches, and wiring (SCE-CPU ICEN, ICPU, and ICPD).                                                                                                                                                                                                                                                               |
| CT Ins Stuck Input (90)       | Cartop inspection Enable, Up, and Down inputs are monitored in all modes. This fault is asserted if any of the three is high when the car is on Automatic mode or is detected as stuck during inspection mode. This fault does not affect car behavior on inspection mode. On automatic modes, the car is allowed to answer its first call. The CT Ins Stuck Input Flt is then asserted if the car is already at a floor or has reached a floor. (See description below.) Fault-bypassed in Construction.<br>Correction:<br>1. Check all Car Top Inspection related inputs, switches, and related wiring (SCE-CPU CTEN, ICTU, and ICTD).         |
| CT Ins Stuck Input Flt (91)   | A stuck Cartop Inspection input has been asserted (see above) and the car is already at a floor or has reached a floor. The doors open to release passengers and the car removes itself from service. Fault bypassed in Construction mode.<br>Correction:<br>1. Verify switches and wiring on SCE-CPU inputs CTEN, ICTU, and ICTD.                                                                                                                                                                                                                                                                                                               |

**Table 2.16 Touch Screen Event Listings**

| Event                                                                                                                                                                                                                                                                                                                                                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cycle Test - "nnn" ()                                                                                                                                                                                                                                                                                                                                                                                                 | nnn = ESC (293), INA (296), INCP (297), INCT (295), M2L (300), MRIN (298), MASF HIGH (299), MASF LOW (309), PLD COMM (308), PLD ESC (301), PLD INA (304), PLD INCP (305), PLD INCT (303), PLD MRIN (306), PLD SAFC (302), SAFC (294), SPB COMM (307)<br>Before departing a floor, code requires that safety related inputs be tested to ensure they are in the proper state. If an error is found, a Cycle Test fault specific to the problem input will be displayed. Fault-bypassed in Construction/Inspection.<br>Correction:<br>1. Verify installation, condition, and connections for the specified equipment.            |
| Cycle Test M2L (300)                                                                                                                                                                                                                                                                                                                                                                                                  | Reset fault. Go to PLD Diag > PLD Inputs; view flag M2L. Place a call for a landing. M2L must turn off when doors open and stay off until door locks are reestablished. If doors are operating properly, SCE-HVI board may be faulty.                                                                                                                                                                                                                                                                                                                                                                                          |
| Cycle Test MSAF High (299)                                                                                                                                                                                                                                                                                                                                                                                            | Reset fault. Go to SPB DIAG > SPB Inputs: View flag MSAF B. Place a call for a landing. MSAF B must turn off when doors open and stay off until door locks are reestablished. If doors are operating properly, SCE-HVI board may be faulty.                                                                                                                                                                                                                                                                                                                                                                                    |
| DFE/EB1 Stuck Off (144)                                                                                                                                                                                                                                                                                                                                                                                               | Down Fast Enable or emergency brake outputs remain off when commanded to be active. No bypass in any mode.<br>Correction:<br>1. Verify down fast output is correctly connected.<br>2. Verify function of down fast valve.                                                                                                                                                                                                                                                                                                                                                                                                      |
| DFE/EB1 Stuck On (143)                                                                                                                                                                                                                                                                                                                                                                                                | DFE/EB1 reset issued but outputs remain on. No bypass in any mode.<br>Correction:<br>1. Verify down fast output is correctly connected.<br>2. Verify function of down fast valve.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| DFLT is On (140) or (417)                                                                                                                                                                                                                                                                                                                                                                                             | Starter has faulted. Not generated in construction operation. Fault bypassed in Construction/Inspection.<br>1. Verify status of DFLT input.<br>2. Check starter for fault indication and troubleshoot.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Dispatch Load (48)                                                                                                                                                                                                                                                                                                                                                                                                    | The car load has surpassed the designated load point for lobby departure and will automatically prepare to leave the lobby floor. This is not a normally supported input and should not appear unless the installer has configured a spare input to support it and the load weigher used supports this function. Fault-bypassed in Construction.<br>System Verifies:<br>- Status of input.<br>- Load Data = Load Dispatch<br>Correction:<br>1. If in error, verify no input is programmed for this function.<br>2. Otherwise, verify state of input and input device.<br>3. Calibrate load weigher.<br>4. Verify input wiring. |
| Dispatcher Comm Loss (384)                                                                                                                                                                                                                                                                                                                                                                                            | The dispatching controller has lost CAN communication with the other controller.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Door Faults Information:</b><br><b>Flag Definitions</b> - DOL Door Open Limit, DPM Door Position Monitor, GS Gate Switch (car door lock), DLAB Door Lock Access Bottom, DLAT Door Lock Access Top, DLMS Door Lock Mid String, DCL Door Close Limit.<br><b>Normal Open State:</b> DOL=0=DPM=GS=(DLAB/DLAT/DLS depending on car location), DCL=1.<br><b>Normal Closed State:</b> DOL=1=DPM=GS=DLAB=DLAT=DLMS, DCL=0. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |



## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DLAB Open-Running (337)       | The bottom door lock string was not made during a run. The car will make an emergency stop.<br>Correction:<br>1. Verify DLAB input electrically and mechanically.<br>2. Trouble shoot door lock string.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| DLAT Open-Running (339)       | Asserted if the top floor door lock string is not made during a run. The car will make an emergency stop.<br>Correction:<br>1. Verify DLAT input electrically and mechanically.<br>2. Trouble shoot lock string.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| DLMS Open-Running (338)       | Asserted if the middle door lock string is not made during a run. The car will make an emergency stop.<br>Correction:<br>1. Verify DLMS input electrically and mechanically.<br>2. Trouble shoot lock string.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| DN Valve Unable to Open (153) | Hydro Only. The down fast/slow valve failed to open when requested.<br>Correction:<br>1. Verify SPB Diag, SPB Flag Dn Dir is on.<br>2. Verify Dn Slow Lim is on if high speed movement is initiated (Up Fast Ena on). Otherwise, it may be on or off.<br>3. Verify Dn Fast Mon is initially on but off once high speed movement is initiated (Up Fast Ena on). Otherwise, it should remain on for low speed movement.<br>4. Verify Dn Slow Mon is initially on but off once high speed or low speed movement is initiated (Dn Slow Ena on).<br>NOTE: Diagnostic flags on SPB DIAG, SPB FLAGS. If 2LS bus is on, Dn Fast Mon and Dn Slow Mon should be opposite polarity of Dn Fast Ena and Dn Slow Ena respectively. |
| DOB Bypass (36)               | The Door Open Button is stuck. Fault-bypassed in Construction/Inspection.<br>System Verifies:<br>- Door Flags, Stuck DOB Timer = Elapsed<br>- Door Flags, DOB Bypassed and DOB Failed are not true.<br>Correction:<br>1. Verify input and switch.<br>2. See if continuously active on System IO > Programmed Inputs, DOB.                                                                                                                                                                                                                                                                                                                                                                                            |
| DOB Fail (37)                 | The door open button has failed. Fault-bypassed in Construction.<br>System Verifies:<br>- Door Flags = DOB Failed<br>Correction:<br>1. Verify DOB switch and wiring.<br>2. Verify door operator functioning properly.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| DOL Low - DCL Low (325)       | The door open and close limits are not made (DOL and DCL = 0). If the DOOR CONTACT FLT ENABLED option = YES, the car is shut down and the door close button is rendered inoperative as long as the fault is present (per applicable elevator safety code). If the option = NO, the fault is logged but otherwise ignored.<br>Correction:<br>1. Check door open and close limit inputs and contacts.                                                                                                                                                                                                                                                                                                                  |

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DOL Low - DLAB High (334)     | Car is at the bottom floor with doors open but the bottom door lock string is made (DOL = 0, DLAB = 1). If the DOOR CONTACT FLT ENABLED option = YES, the car is shut down and the door close button is rendered inoperative as long as the fault is present (per applicable elevator safety code). If the option = NO, the fault is logged but otherwise ignored.<br>Correction:<br>1. Check door open limit and bottom door lock string inputs and contacts.           |
| DOL Low - DLAT High (330)     | Car is at the top floor with doors open but the top door lock string is made (DOL = 0, DLAT = 1). If the DOOR CONTACT FLT ENABLED option = YES, the car is shut down and the door close button is rendered inoperative as long as the fault is present (per applicable elevator safety code). If the option = NO, the fault is logged but otherwise ignored.<br>Correction:<br>Check door open limit and top door lock string inputs and contacts.                       |
| DOL Low - DLMS High (332)     | Car is at a floor other than the top or bottom with doors open but the door lock string is made (DOL = 0, DLMS = 1). If the DOOR CONTACT FLT ENABLED option = YES, the car is shut down and the door close button is rendered inoperative as long as the fault is present (per applicable elevator safety code). If the option = NO, the fault is logged but otherwise ignored.<br>Correction:<br>Check door open limit and middle door lock string inputs and contacts. |
| DOL Low - DPM High (287, 288) | Doors are open but DPM limit is made (DOL = 0, DPM = 1). If the DOOR CONTACT FLT ENABLED option = YES, the car is shut down and the door close button is rendered inoperative as long as the fault is present (per applicable elevator safety code). If the option = NO, the fault is logged but otherwise ignored.<br>Correction:<br>1. Check door open and position monitoring limit inputs and contacts.                                                              |
| DOL Low - GS High (285)       | The door open limit and car gate switch positions are conflicting (DOL = 0, GS = 1). If the DOOR CONTACT FLT ENABLED option = YES, the car is shut down and the door close button is rendered inoperative as long as the fault is present (per applicable elevator safety code). If the option = NO, the fault is logged but otherwise ignored.<br>Correction:<br>1. Check the door open limit and car gate switch inputs and contacts.                                  |
| Door Bypass Construct (315)   | Machine room inspection and construction operation are active and one or both of the Car/Hoistway Door Bypass switches is in the Bypass position. Cannot be bypassed.<br>System Verifies:<br>- ModeOfOperation = OpModeConstructionBP<br>Correction:<br>1. Exit construction operation ( <a href="#">Construction Operation on page 1-8</a> )                                                                                                                            |
| Door Bypass Inspection (126)  | Machine Room inspection is active and one or both of the Car/Hoistway Door Bypass switches is in the Bypass position. Cannot be bypassed.<br>System Verifies:<br>- ModeofOperation = OpModeInspectionBP<br>Correction:<br>Turn off one or both of the Car/Hoistway Door Bypass switches.                                                                                                                                                                                 |

## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                                                                                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Door Close Fail 1 (77)<br>Door Close Fail 2 (78)<br>Door Close Fail 3 (79)<br>Door Close Fail 4 (80) | Detected for each failed attempt to close the doors at a destination floor. Cleared if the doors successfully close. Cannot be bypassed.<br>System Verifies:<br>- Door Flags, Door Command Data, Door Close Fail = 1 (2, 3)<br>Correction:<br>1. Check all door contacts.<br>2. Check for correct door operation and speed.<br>3. Check fuses FDLN1 and FDLN2.                                                                                                                                                                                                                                                      |
| Door Close Fault (15)                                                                                | The doors have tried and failed to close three times. (See Door Close Fail 1 - 3.) All calls are canceled. Cleared when the doors successfully close or by pressing the fault reset button. Also cleared by cycling controller power or if the mode of operation is changed. Fault bypassed in Construction/Inspection.<br>System Verifies:<br>- Door close fault flag<br>Correction:<br>1. Check all door contacts.<br>2. Check fuses FDLN1, FDLN2.<br>3. Check for correct door operation and speed.                                                                                                              |
| Door Fault Shutdown (108)                                                                            | The door has failed to close after three closing cycles have been attempted. Doors will fully open and the car will shut down. Fault bypassed in Construction/Inspection.                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Door Hold (110)                                                                                      | The Door Hold input is active. Fault bypassed in Construction/Inspection.<br>System Verifies:<br>- Door Flags, Door Hold Data, Door Hold Function active.<br>Correction:<br>1. If in error, check wiring (be sure that door hold timer has expired).                                                                                                                                                                                                                                                                                                                                                                |
| Door Open Fail 1 (73)<br>Door Open Fail 2 (74)<br>Door Open Fail 3 (75)<br>Door Open Fail 4 (76)     | Detected for each failed attempt to open the doors at a destination floor. Cleared if the doors successfully open. Cannot be bypassed.<br>System Verifies:<br>- Door Flags, Door Command Data, Door Open Fail = 1 (2, 3)<br>Correction:<br>1. Check all door contacts.<br>2. Check the user defined Open Time Limit.<br>3. Check for correct door operation and speed.<br>4. Check fuses FDLN1, FDLN2.                                                                                                                                                                                                              |
| Door Open Fault (13)                                                                                 | The doors have tried and failed to open three times. (See Door Open Fail 1 - 3.) All calls are canceled. Door may be opened with constant pressure on the door open button. Cleared when the doors successfully open or by pressing the fault reset button. Also cleared by cycling controller power or if the mode of operation is changed. Fault-bypassed in Construction/Inspection.<br>System Verifies:<br>- Door open fault flag<br>Correction:<br>1. Check all door contacts.<br>2. Check the user defined Open Time Limit.<br>3. Check for correct door operation and speed.<br>4. Check fuses FDLN1, FDLN2. |
| Doors Closed Not Locked (349)                                                                        | Car is at a floor with doors fully closed but locks are not made. The car is prevented from starting a new run.<br>Correction:<br>1. Check car gate switch and all door lock strings.                                                                                                                                                                                                                                                                                                                                                                                                                               |



**Table 2.16 Touch Screen Event Listings**

| Event                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DPM Low - DLK High (289)   | The door position monitor switch is open but the door locks are made. If the DOOR CONTACT FLT ENABLED option = YES, the car is shut down and the door close button is rendered inoperative as long as the fault is present (per applicable elevator safety code). If the option = NO, the fault is logged but otherwise ignored.<br>Correction:<br>1. Check door position monitoring and door lock string inputs and related circuitry. |
| DPM Open-Running (312)     | Asserted if the door position monitoring switch is not made during a run. The car will make an emergency stop.<br>Correction:<br>1. Verify DPM input parameter.<br>2. Verify DPM input electrically and mechanically.                                                                                                                                                                                                                   |
| DRDY is Off (139) or (416) | Starter ready input is off. Fault-bypassed in Construction/Inspection.<br>1. Check the drive or starter for fault indication and troubleshoot.<br>2. Verify DRDY output and input to SCE-CPU.                                                                                                                                                                                                                                           |
| DSE/EB2 Stuck Off (150)    | Hydro Only. Down Slow Enable/EB2 commanded on but remains in low state. Not bypassed in any mode;<br>Correction:<br>1. Verify connection and status of output.                                                                                                                                                                                                                                                                          |
| DSE/EB2 Stuck On (149)     | Hydro Only. Down Slow Enable/EB2 have been reset but remains in active state. Bypassed in Inspection or Construction Bypass operation.<br>Correction:<br>1. Verify connection and status of output.                                                                                                                                                                                                                                     |
| DLS1 is Low (370)          | Informational. DSL1 input is low.<br>Correction:<br>If in error, verify function of switch (if physical) and/or input.                                                                                                                                                                                                                                                                                                                  |
| DSL1 Position Low (408)    | The car encountered the DSL1 switch at a position lower than that learned during the hoistway learn operation.<br>Correction:<br>1. Verify position of switch (software or physical).<br>2. Repeat hoistway learn operation.                                                                                                                                                                                                            |
| DSL1/DSL2 Mismatch         | Hydro Only. DSL1/DSL2 are in different states. The car will relevel into the next floor and remove itself from service.<br>Correction:<br>1. Verify switch status and connections                                                                                                                                                                                                                                                       |
| DSL2 Position Low (410)    | The car encountered the DSL2 switch at a position lower than that learned during the learn operation. The car will perform an emergency slowdown then proceed at correction speed to the terminal.<br>Correction:<br>1. Verify position of switch (software or physical).<br>2. Repeat learn operation (Utils > Landing System Utilities > Terminal Switch Learn).                                                                      |



## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DTL and USLx Are Low (314)    | <p>The Down Terminal Limit switch and the named Up Slow Limit are both low (open); both cannot be low at the same time. The car will stop at the next floor, cancel all calls, cycle doors to allow passengers to exit, and will not be allowed to move. Fault-bypassed in Construction.</p> <p>System Verifies:</p> <ul style="list-style-type: none"> <li>- Limit inputs DTL and USL low.</li> <li>- 2 bus has power.</li> </ul> <p>Correction:</p> <ol style="list-style-type: none"> <li>1. Verify switches mechanically and electrically.</li> <li>2. Verify input connections.</li> <li>3. View touchscreen landing system flags for correct status.</li> </ol> |
| DTL is Low (155)              | <p>The Down Terminal Limit switch has opened. If moving down, the car will perform an emergency stop. This switch should not open unless the car overshoots the terminal and opens the switch. The open switch prevents further movement towards the terminal. Cannot be bypassed.</p> <p>System Verifies:</p> <ul style="list-style-type: none"> <li>- 2 bus has power.</li> <li>- DTL input is low.</li> </ul> <p>Correction:</p> <ol style="list-style-type: none"> <li>1. If in error, verify switches and connections mechanically and electrically.</li> <li>2. Use System Diag &gt; Landing System to check the state of the switch.</li> </ol>                |
| Duplicate Car ID (379)        | Same ID has been assigned to more than one car. Event is informational.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Duplicate Dispatcher (382)    | Both cars in a duplex have been assigned the dispatcher role.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| DZF Output Fault (Edge) (215) | <p>Measured DZ and the 24VDC discrete DZ do not match. Fault-bypassed in Construction/Inspection.</p> <p>System Verifies:</p> <ul style="list-style-type: none"> <li>- LS-EDGE-EL is the selected landing system.</li> </ul> <p>Correction:</p> <ol style="list-style-type: none"> <li>1. Check for back-fed wires at the cartop board.</li> <li>2. When reader is sensing a DZ magnet (DZ LED on reader is on), there should be 24VDC at DZ terminal.</li> <li>3. Conversely, there should be about 0VDC at DZ terminal when reader is not sensing DZ.</li> </ol>                                                                                                    |
| Earthquake Operation (418)    | <p>Logged when earthquake input is activated. Bypassed in Construction bypass operation.</p> <p>Correction:</p> <ol style="list-style-type: none"> <li>1. Check state of inputs EQ SS and EQ CWT.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Earthquake Recall (95)        | The car is being recalled on earthquake operation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Earthquake Run (97)           | <p>The car has performed an emergency stop in response to EQ SS and/or EQ CWT input activation, has recalled, and is subsequently moving at reduced speed in accordance to the selected earthquake code. Fault-bypassed in Construction.</p> <p>System Verifies:</p> <ul style="list-style-type: none"> <li>- Earthquake Data = EQ Run</li> </ul> <p>Correction:</p> <ol style="list-style-type: none"> <li>1. Press EQRST on SCE-CPU board to reset.</li> </ol>                                                                                                                                                                                                      |

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Earthquake Shutdown (96)      | Per the selected earthquake code, the car has lowered to the closest floor below its emergency stop position, opened its doors, and shut down. Fault-bypassed in Construction.<br>System Verifies:<br>- Earthquake Data = EQ Shutdown<br>Correction:<br>1. Press EQ RST on SCE-CPU board to reset.                                                                                                                                                                              |
| EB Cycle Test Fault (388)     | The emergency brake has failed a cycle test. The car will not be allowed to run.<br>Correction:<br>1. Verify emergency brake I/O and power.                                                                                                                                                                                                                                                                                                                                     |
| Emergency Dispatch (125)      | The hall call bus has failed and the car is operating on emergency dispatching to continue service to the building. Fault-bypassed in Construction/Inspection. Check OBD for message:<br>3HN comm loss or<br>Emergency dispatch input (EM DISP) activated.<br>System Verifies:<br>- Emergency Dispatch Data = Emerg Dispatch<br>Correction:<br>1. Verify hall call functionality.<br>2. Verify EM DISP input; System IO > Programmed Inputs (must be assigned to a valid input) |
| EMS In Car (444)              | Car has completed recall to EMS floor and medical personnel have activated the EMS switch in the car.                                                                                                                                                                                                                                                                                                                                                                           |
| EMS Recall (441)              | Emergency medical service has been initiated.<br>Correction:<br>1. If in error, check EMS input.<br>2. If EMS service has not been activated, verify that no input has been programmed for the EMS function.                                                                                                                                                                                                                                                                    |
| EP Comm/Config Shutdown (380) | Emergency power in effect with dispatching communications lost. Car will shut down. Cannot be bypassed.<br>Correction:<br>1. Check Config 03 > Emergency Power > Emergency Power Type. If set to none, check that no spare input has been programmed as EPI. If set to Dispatcher or Overlay, check that there is a spare input programmed as EPI.                                                                                                                              |
| EP Recall (20)                | Emergency power is available and the recall process has been initiated. Cannot be bypassed.<br>System Verifies:<br>- EP Data Status = EP Recall<br>- EPI flag = 1 for normal operation (active low logic)<br>Correction:<br>1. If in error, check System IO > Programmed Inputs > EPI status.                                                                                                                                                                                   |
| EP Recall Complete (22)       | The car has completed recall to the designated recall floor. Cannot be bypassed.<br>System Verifies:<br>- EP Data Status = EP Recall Done                                                                                                                                                                                                                                                                                                                                       |
| EP Recall Fail (23)           | Emergency power recall has been initiated but the car has failed to recall. Cannot be bypassed.<br>System Verifies:<br>- EP Data Status = EP Recall Fail<br>Correction:<br>1. Check that car is on automatic operation with no active faults.                                                                                                                                                                                                                                   |



## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                      | Description                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EP Recall ISV (21)         | The car is moving toward the recall floor under emergency power. Cannot be bypassed.<br>System Verifies:<br>- EP Data Status = EP Recall ISV<br>Correction:<br>1. Check EPI status on SPA Diag > Emerg Pwr and Earthquake.<br>2. EPI input terminal must be 0V for normal operation.                                                                                                                       |
| EP Recall Next Floor (385) | Emergency power is available and recall to the next floor has been initiated. Cannot be bypassed.<br>Correction:<br>1. If in error, check System IO > Programmed Inputs > EPI status.                                                                                                                                                                                                                      |
| EP Run (24)                | The car has been selected to run under emergency power. Cannot be bypassed.<br>System Verifies:<br>- EP Data Status = EP Run<br>Correction:<br>1. If in error, check that the EP Run has not been erroneously assigned to an input or, if a valid input has been assigned, verify the electrical state of that input and that it is wired correctly.<br>2. Verify EP Auto (System IO > Programmed Inputs). |
| EP Shutdown (19)           | Normal power has been lost and the car is stopped. The car will remain stopped until backup power becomes active or commercial power is restored.<br>System Verifies:<br>- EP Data Status = EP Shutdown<br>Correction:<br>1. If in error, check status of System IO > Programmed Inputs, EPI.<br>2. Verify EPI not programmed if not used.<br>3. If used, verify EPI wiring per job prints.                |
| EQ Emergency Stop (94)     | Earthquake inputs EQ SS or EQ CWT have been activated and the car has performed an emergency stop. Further operation will be per the selected earthquake code. Fault-bypassed in Construction.<br>System Verifies:<br>- Earthquake Data = EQ Stop<br>Correction:<br>1. Verify System IO > Programmed Inputs, EQ SS or EQ CWT.                                                                              |
| ESC Input Low (162)        | The in-car emergency stop switch bypass input is low. If moving, the car will perform an emergency stop. The doors will not operate.<br>System Verifies:<br>- ESC input is low<br>Correction:<br>1. If in error, verify input and input device electrically and mechanically.<br>2. Verify status System IO > System Inputs ESC.                                                                           |
| Ethernet Error (251)       | Monitoring processor cannot communicate with the Ethernet chip. Cannot be bypassed.<br>Correction:<br>1. Verify Ethernet connection.<br>2. Verify Ethernet settings (Config 03 > Network Settings).<br>3. Reset processor SPC (RSTC button on SCE-CPU board).                                                                                                                                              |
| Event Log Cleared (228)    | This message will appear momentarily when the event log is cleared through the touch screen. System Diag > Event Log > Clear.                                                                                                                                                                                                                                                                              |

**Table 2.16 Touch Screen Event Listings**

| Event                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Event Log Write Fail (167) | Occurs if the SPC processor tries to write an event to the SD card but cannot. Car runs normally.<br>Correction:<br>1. Verify SD card is installed; eject and reseal.<br>2. Clear the event log.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Excessive Faults (129)     | This fault is generated when there are more than ten faults that resulted in an emergency, controlled or ASAP stop. The counter resets if the car makes ten normal runs without any faults. The car is taken out of service and all registered calls are canceled. The car will proceed to the next available floor and cycle the doors to let the passengers out. Once at a floor, the "Excessive Faults Shutdown" fault is activated and the car will remain shut down until the Fault Reset button is pressed, Inspection is toggled or power to the controller is cycled. Fault-bypassed in Construction/Inspection.<br>1. Access the event log and determine which recent events triggered the fault.<br>2. Troubleshoot those faults to prevent their recurrence. |
| Fire Bypassed (120)        | Detected when fire service is activated but the car cannot perform fire recall due to certain conditions (Inspection, Test, or Independent Service mode active). Cleared as soon as the conditions preventing fire recall are cleared. Cannot be bypassed.<br>Correction:<br>1. Check the current mode of operation and verify that the operation is per the selected user defined Elevator Safety Code.                                                                                                                                                                                                                                                                                                                                                                |
| Fire II (25)               | Fire Phase II, in-car firefighter operation, is active. Cannot be bypassed.<br>System Verifies:<br>- Mode of Operation = Fire II<br>Correction:<br>1. If in error, verify in-car fire fighter switch mechanically and electrically.<br>2. Verify status of System IO > Programmed Inputs > FR2 ON.<br>3. Verify FR2 ON input is not shorted.                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Fire II Hold (17)          | The in-car fire fighter switch is in the HOLD position. Cannot be bypassed.<br>System Verifies:<br>- Mode of Operation = Op Mode Fire II<br>- Fire Data = FIRE II HOLD<br>Correction:<br>1. If in error, verify in-car fire switch mechanically and electrically.<br>2. Verify correct wiring per job prints.<br>3. Verify status of FR2 HOLD flag at System IO > Programmed Inputs.                                                                                                                                                                                                                                                                                                                                                                                    |
| Fire II Recall (26)        | The doors are closed, the in-car fire switch is off and the car is recalling to the recall floor. Cannot be bypassed.<br>System Verifies:<br>- Mode of Operation = Fire Recall<br>Correction:<br>1. If in error, verify programmed Input System IO > Programmed Inputs > FR2 ON.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                      | Description                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fire Recall Alt (28)       | The car is recalling to the alternate fire recall floor. At the floor, the car will behave as configured. Cannot be bypassed.<br>System Verifies:<br>- Mode of Operation = Fire Recall Alt<br>Correction:<br>1. If in error, verify operation of fire/smoke sensors on main recall floor.<br>2. Verify sensors wired according to job prints.<br>3. Verify System IO > System Input > FRA = on for normal. |
| Fire Recall Done (54)      | The car has completed recall to the designated floor. Cannot be bypassed.<br>System Verifies:<br>- Fire Data = Recall Complete                                                                                                                                                                                                                                                                             |
| Fire Recall Main (27)      | The car is recalling to the main fire recall floor. At the floor, the car will behave as configured. Cannot be bypassed.<br>System Verifies:<br>- Mode of Operation = Fire Main<br>Correction:<br>1. If in error, verify operation of fire/smoke sensors on floors other than main recall floor.<br>2. Verify sensors wired according to job prints.<br>3. Verify System IO > System Inputs, FRM.          |
| Fire Recall: FR1 On (343)  | Fire recall initiated by the main fire recall switch (SCE-CPU FR1 ON input active low). Car recalls to the designated fire floor (usually the lobby).<br>Correction:<br>1. Verify System IO > FR1 ON = Off for normal.                                                                                                                                                                                     |
| Fire Recall: FR1 On2 (344) | A spare input programmed for the FR1 ON2 has been activated.<br>Correction:<br>1. Verify spare input programming.<br>2. Check terminal associated with input.                                                                                                                                                                                                                                              |
| Fire Recall: FRA (345)     | Fire recall initiated by fire sensors in the lobby. SCE-CPU FRA input low. Car recalls to the alternate fire floor.<br>Correction:<br>1. Verify System IO > System Inputs > FRA = On for normal.                                                                                                                                                                                                           |
| Fire Recall: FRS (342)     | The dedicated FRS input on the SCE-CPU has been activated.<br>Correction:<br>1. Check the main floor fire recall switch.                                                                                                                                                                                                                                                                                   |
| Fire Recall: FRSA (347)    | Fire recall initiated by the fire sensors in the machine room and/or hoistway (SCE-CPU FRSA input low). Car recalls to the alternate fire floor.<br>Correction:<br>1. Verify System IO > System Inputs > FRSA = On for normal.                                                                                                                                                                             |
| Fire Recall: FRSM (346)    | Recall initiated by one or more fire sensors at floors other than the ones at the lobby (SCE-CPU FRS input low). Car recalls to the designated fire floor (usually the lobby).<br>Correction:<br>1. Verify System IO > System Inputs > FRSM = On for normal.                                                                                                                                               |
| Firmware Update (383)      | Controller firmware has been updated.                                                                                                                                                                                                                                                                                                                                                                      |
| Flood Operation (30)       | Flood operation has been initiated. Cannot be bypassed.<br>Correction:<br>1. If in error, verify no programmable Input Pit Flood is configured.<br>2. Verify System IO > Programmed Inputs > Pit Flood and initiating device.                                                                                                                                                                              |



**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flood Recall (31)             | The car is recalling to the designated flood operation recall floor. Cannot be bypassed.<br>System Verifies:<br>- Flood Data = Flood Recall<br>Correction:<br>1. If in error, verify no programmable Input Pit Flood is configured.<br>2. Verify System IO > Programmed Inputs > Pit Flood and initiating device.                                                                                                                                                                                                                    |
| Floor Code Invalid (311)      | An invalid (out of range) absolute floor code has been detected.<br>On a stepping landing system: Check spare inputs (R0, R1, R2, etc) to ensure they are returning valid binary floor codes. Refer to landing system drawing in controller job prints.<br>On an LS-EDGE landing system this fault may require performing the hoistway learn procedure to re-learn the floors.                                                                                                                                                       |
| Flt Bypass JP (264)           | The fault bypass jumper on the SCE-CPU board is in the BYPASS position. Cannot be bypassed.                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Flt Bypass JP: Time Out (265) | The fault bypass jumper on the SCE-CPU board is in the BYPASS position and will be effective for the duration of the countdown timer displayed. When the timer expires the system will ignore the jumper and Fault Bypass will end. If more time in fault bypass is required, cycle power to the controller to "reset" the jumper or temporarily move the jumper to the OFF position before again placing it in the BYPASS position.                                                                                                 |
| GS Open-Running (336)         | Asserted if the car gate switch is not made during a run. The car will make an emergency stop.<br>Correction:<br>1. Verify GS input electrically and mechanically.                                                                                                                                                                                                                                                                                                                                                                   |
| Hall Calls Bypassed (355)     | Hall calls are being bypassed. Typically due to heavy load status of car.<br>Correction:<br>Automatically corrected when car load allows additional passenger.<br>1. Verify System IO > Programmed Inputs > Load Hvy.                                                                                                                                                                                                                                                                                                                |
| Hall Calls Disabled (354)     | Hall calls have been disabled. Typically due to heavy load status of car.<br>Correction:<br>Automatically corrected when car load allows additional passenger.<br>1. Verify System IO > Programmed Inputs > Load Hvy.                                                                                                                                                                                                                                                                                                                |
| HDB Switch Fault (329)        | Generated when the HDB and HDBO inputs are in the same state (both low or both high) indicating a possible failure of the Hoistway Door Bypass Switch.<br>Correction:<br>1. Toggle hoistway door bypass switch and verify that diagnostic LEDs HDB, HDBO also toggle (System IO > System Inputs).<br>2. Verify HDBPTST jumper is inserted in the OFF position.                                                                                                                                                                       |
| Heavy Load (47)               | The car is loaded beyond the heavy load setting. Under this condition, a moving car will ignore additional hall calls until the load is reduced by passenger departure. Fault-bypassed in Construction.<br>System Verifies:<br>- Status of input<br>- Load Data = Load Heavy<br>Correction:<br>1. If in error, verify no input is programmed for Load Hvy.<br>2. Otherwise, verify status of input and input device.<br>3. Verify input wiring.<br>4. Verify System IO > Programmed Inputs > Load Hvy.<br>5. Calibrate load weigher. |

## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hoist. Access Construct (58)  | The car is on construction operation and hoistway access. Cannot be bypassed.<br>Correction:<br>1. Exit construction operation ( <a href="#">Construction Operation on page 1-8</a> ).                                                                                                                                                       |
| Hoist. Access Inspection (62) | The car is on Inspection mode and hoistway access. Cannot be bypassed.<br>System Verifies:<br>- Mode of Operation = Inspection HA<br>Correction:<br>1. If in error, verify INA input.                                                                                                                                                        |
| In-Car Construct/Bypass (317) | Car panel inspection and construction operation are active and one or both of the Car/Hoistway Door Bypass switches is in the Bypass position. Cannot be bypassed.<br>System Verifies:<br>- ModeOfOperation = OpModeConstructionBPCP<br>Correction:<br>1. Exit construction operation ( <a href="#">Construction Operation on page 1-8</a> ) |
| In-car Construction (57)      | The car is operating in construction mode from the in-car controls.                                                                                                                                                                                                                                                                          |
| In-Car Insp/Bypass (128)      | Car Panel inspection is active and one or both of the Car/Hoistway Door Bypass switches is in the Bypass position. Cannot be bypassed.<br>System Verifies:<br>- ModeofOperation = OpModeInspectionBPCP<br>Correction:<br>1. Turn off one or both of the Car/Hoistway Door Bypass switches.                                                   |
| In-Car Inspection (61)        | The car is on Inspection mode and is being operated from the in-car inspection station. Cannot be bypassed.<br>System Verifies:<br>- Mode of Operation = Inspection CP<br>Correction:<br>1. If in error, verify car panel inspection inputs.                                                                                                 |
| Independent Mode (29)         | The car is running on independent mode and will not accept hall calls. Cannot be bypassed.<br>System Verifies:<br>Mode of Operation = Independent<br>Correction:<br>1. If in error, verify no input programmed IND SERV if IND SERV not available.<br>2. Verify IND SERV input and initiating device wired per job prints.                   |
| Inspection Invalid (99)       | Controller unable to establish proper mode of Inspection. Fault-bypassed in Construction/Inspection.<br>System Verifies:<br>- Mode of Operation = Inspection Invalid<br>Correction:<br>1. Verify all inspection inputs mechanically and electrically.                                                                                        |
| Invalid Access Zone (369)     | Car has been placed on Inspection Access but is outside the selected access zone.<br>If in error:<br>1. Verify car position.<br>2. Verify CONFIG 02 > HOISTWAY SETUP > TOP BOTTOM ACCESS DISTANCE.<br>3. Verify switch wiring.                                                                                                               |

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Invalid Mode (6)              | The car is in an invalid operating mode. Appears temporarily at power up and is immediately replaced with the actual operating mode. If it appeared during normal operation, a running car would perform an emergency stop and shut down. A stopped car would remain stopped and shut down. Cannot be bypassed.<br>System Verifies:<br>- Mode of Operation = OpModeInvalid or OpModeInspectionInvalid<br>Correction:<br>1. Cycle power to the controller.<br>2. Contact MCE; possible defective SCE-CPU board.                                |
| IO Terminal Mapping Flt (341) | More than one spare input or output are programmed to the same hardware IO terminal.<br>Correction:<br>1. Verify spare inputs and outputs.                                                                                                                                                                                                                                                                                                                                                                                                    |
| Leveling Overspeed (425)      | A leveling overspeed has been detected. The car will perform an emergency stop and be removed from service.<br>Correction:<br>1. Verify landing system connections and configuration (CONFIG2 > System Control Parameters > Leveling Overspeed).                                                                                                                                                                                                                                                                                              |
| LLI Antinuisance (352)        | Informational. The light load antinuisance call threshold has been achieved; additional car calls are being canceled. Self resetting. Cannot be bypassed.                                                                                                                                                                                                                                                                                                                                                                                     |
| Low Oil: Fire I (64)          | Hydro Only. Low hydraulic oil level detected and the car is recalling to the next available lower floor on Fire Phase I. The car will cycle its doors, then shut down. DOB remains active. Manual reset required. Cannot be bypassed.<br>System Verifies:<br>- Oil Data, Recall Done is not active<br>- Oil Data = Oil Fire Recall<br>- Recall Data = Recall LOS<br>- Mode of Operation = Fire I                                                                                                                                              |
| Low Oil: Fire II (65)         | Hydro Only. Low hydraulic oil level has been detected and the car is operating on in-car firefighter operation. Operation per Elevator Safety Code. Cannot be bypassed.<br>System Verifies:<br>- Oil Data, Recall Done is not active<br>- Recall Data = Recall LOS<br>- Mode of Operation = Fire II                                                                                                                                                                                                                                           |
| Low Oil: On (122)             | Hydro Only. The OIL LOW input is active. Cannot be bypassed. Correction:<br>1. If in error, verify no OIL LOW input is programmed or the status of that input if programmed.                                                                                                                                                                                                                                                                                                                                                                  |
| Low Oil: Recall (63)          | Hydro Only. Low hydraulic oil level has been detected. If car is stopped in a door zone, the doors will remain open to allow passengers to exit. Doors shall not remain open beyond 15 seconds and will close automatically upon timer expiration. Doors will not respond to hall button demand but will reopen if the in-car DOB is pressed. The car will shut down and manual reset is required. If car doors are closed, the car will recall to the bottom landing and open its doors (door conditions same as above). Cannot be bypassed. |
| Low Oil: Recall Fail (67)     | Hydro Only. Low hydraulic oil level detected but car is unable to recall. Cannot be bypassed.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Low Oil: Shutdown (66)        | Hydro Only. The car has completed low oil level recall. Doors will cycle; car will shut down; DOB will remain active. Cannot be bypassed.                                                                                                                                                                                                                                                                                                                         |
| LS Config Error (427)         | Generated when Level Distance is not greater than Level Dead Zone Distance and/or Relevel Distance is not greater than Relevel Dead Zone Distance. Car is shut down. The fault is non-latching.<br>Correction:<br>Adjust Config 02 > System Control Parameters mentioned above.                                                                                                                                                                                   |
| LS-EDGE Boot Correction (364) | If the controller loses power, LS-EDGE continues to record position for a short period of time. When power is regained, if LS-EDGE determines that the car has moved from its last recorded position, it will perform a terminal sync to correct.<br>Correction:<br>1. Cycle power. LS-EDGE should clear the message.<br>2.                                                                                                                                       |
| LS-EDGE Boot with Error (363) | Initiated by the LS-EDGE-EL landing system. The LS-EDGE system has discovered an error while booting up after a power on or system reset. All calls will be canceled; doors will remain closed. Cannot be bypassed.                                                                                                                                                                                                                                               |
| LS-EDGE Count Error (362)     | Initiated by the LS-EDGE-EL landing system. Position count upon detecting a previously learned magnet is outside the acceptable margin of error. All calls will be canceled; doors will remain closed. Cannot be bypassed.<br>Correction:<br>1. Verify position of magnet.<br>2. Reset LS-EDGE.<br>3. Repeat hoistway learn if problem persists (Utils > Landing System Utilities > Hoistway Learn (Landing System Learn)).                                       |
| LS-EDGE Floor Checksum (368)  | After a learn operation, the landing system and the controller both store the resulting checksum. On power up, the checksums are compared to ensure they match. If they do not, the car will not be allowed to move until a successful learn operation is performed. Bypass in Construction or Inspection bypass mode.<br>Correction:<br>1. Repeat hoistway learn if problem persists (Utils > Landing System Utilities > Hoistway Learn (Landing System Learn)). |
| LS-EDGE Learn Active ( )361   | Informational message while LS-EDGE is performing a hoistway learn operation.                                                                                                                                                                                                                                                                                                                                                                                     |
| LS-EDGE Position Error (365)  | Initiated by the LS-EDGE-EL landing system. LS-EDGE has detected a previously learned floor zone or terminal magnet outside learned position margins. If moving, the car will perform an emergency stop. If stopped, the car will not be allowed to move. Bypassed in Construction Bypass mode.<br>Correction:<br>1. Verify magnet positions.<br>2. Repeat hoistway learn operation (Utils > Landing System Utilities > Hoistway Learn (Landing System Learn)).   |
| LS-EDGE: Access Ovrspd (446)  | LS-EDGE has detected an overspeed while operating on hoistway access.                                                                                                                                                                                                                                                                                                                                                                                             |
| LS-EDGE: Inspect Ovrspd (447) | LS-EDGE has detected an overspeed while operating on Inspection mode.<br>Correction:<br>1. Verify Inspection Overspeed setting (CONFIG02 > System Control Parameters > Inspection Overspeed).<br>2. Verify Profile Scale setting (CONFIG02 > System Control Parameters > Profile Scale).                                                                                                                                                                          |

**Table 2.16 Touch Screen Event Listings**

| Event                                                                                                                    | Description                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| M2L is Low (134)                                                                                                         | 2LS bus unexpectedly low. Cannot be bypassed.<br>Correction:<br>1. Verify fuse F2MV on SCE-UPD board.                                                                                                                                                                                                                   |
| M2MV is Low (132)                                                                                                        | 2MV Bus (120VAC) monitoring input is low. Cannot be bypassed.<br>1. Check fuse F2MV on the SCE-UPD board.<br>2. Verify 120VAC across terminals X1B and X2B on the SCE-UPD.                                                                                                                                              |
| Machine Room Construct (56)                                                                                              | The car is on construction operation and machine room inspection.<br>System Verifies:<br>- Mode of Operation = Construction MR<br>Correction:<br>1. Exit construction operation ( <a href="#">Construction Operation on page 1-8</a> ).                                                                                 |
| Machine Room Inspection (60)                                                                                             | The car is on machine room inspection. Cannot be bypassed.<br>System Verifies:<br>- Mode of Operation = Inspection MR<br>1. If in error, verify position of machine room inspection switch.                                                                                                                             |
| MC-CPI (0) is Offline (320)<br>MC-CPI (1) is Offline (321)<br>MC-CPI (2) is Offline (322)<br>MC-CPI (3) is Offline (323) | The MC-CPI at this ID is offline. Fault-bypassed in Construction.<br>Correction:<br>1. Verify CPI connections and power.<br>2. Verify CPI ID switches correct and fully on or off.<br>3. Cycle power to the controller.<br>4. Contact MCE; possible defective MC-CPI board.                                             |
| MDRE Failed to Turn Off (135) or (412)                                                                                   | MDRE monitors the solid state starter DRE device. The device did not open when expected. Cannot be bypassed.<br>Correction:<br>1. Check the associated wiring.<br>2. Verify the DRE system output.<br>3. Contact MCE; possible defective SCE-CPU board.                                                                 |
| MDRE Failed to Turn On (136) or (413)                                                                                    | MDRE monitors the solid state starter DRE device. The device did not close when expected. Fault-bypassed in Construction/Inspection.<br>Correction:<br>1. Check the associated wiring.<br>2. Verify the DRE system output.<br>3. Contact MCE; possible defective SCE-CPU board.                                         |
| MEB2 Redundancy Fault (423)                                                                                              | Checks the emergency brake activation logic. MEB2 should be active every other run.<br>Correction:<br>1. Check connector at DSE/EB2 on SCE-HVI board. If connection is correct, go to PLD DIAG > PLD INPUTS. View flag MEB2.<br>2. If MEB2 does not toggle every other run, contact MCE; possibly faulty SCE-HVI board. |
| MEB3 Failed to Turn Off (238)                                                                                            | MEB3 monitors the EB3 device. EB3 did not go low when expected. Cannot be bypassed.<br>Correction:<br>1. Verify the EB3 system output, PLD Diag > PLD Outputs > EB3P.                                                                                                                                                   |
| MEB3 Failed to Turn On (284)                                                                                             | MEB3 monitors the EB3 device. The device did not close when expected. Fault-bypassed in Construction/Inspection.<br>Correction:<br>1. Verify the EB3 system output, PLD Diag > PLD Outputs > EB3P vs. test point EB3 on SCE-HVI board.                                                                                  |

## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Motor Time Out (10)           | Failure of the car to reach a target floor in the allowed time.<br>Correction:<br>1. Modify motor limit timer to a value that allows car to run the entire hatch without a fault.<br>2. Ensure that drive or starter is not shutting down during a run.<br>There may be a mechanical problem that prevents or slows the motion of the car.                                                              |
| Motor Time Out Shutdown (327) | The CONFIG01 timer, MOTOR/VALVE TIME LIMIT has been exceeded (typical 5 minutes; max 30 minutes).<br>Correction:<br>1. If car stalls in an express zone without door zone magnets it may take more than 5 minutes to arrive at a landing. Increase timer setting to allow sufficient time. Check event log for other events that may have prevented car from moving. Verify no obstructions.            |
| MSAF Input Failure (7)        | Generated if:<br>Code 1: MSAF unexpectedly active when 2MV bus is low.<br>Code 2: MSAF is unexpectedly inactive when 2MV bus is high and SAFP and SAFB outputs are enabled. Cannot be bypassed.<br>Correction:<br>1. Verify wiring and voltage on 2MV terminal of SCE-HVI board.<br>2. Verify status of M2MV, SAFP and SAFB, System IO > System Inputs.                                                 |
| MSAF Is High (282)            | MSAF input unexpectedly high when 2MV bus is low or SAFB or SAFP outputs are inactive. Cannot be bypassed.<br>Correction:<br>1. Verify M2MV, SAFB and SAFP through System IO > System Inputs.<br>2. Go to SPB DIAG > SPB Inputs. View flag MSAF B. This flag must toggle during door operation as part of the cycle test.<br>3. Contact MCE; possible faulty SCE-HVI board.                             |
| MSAF Is Low (133)             | MSAF input unexpectedly low when 2MV bus is high and SAFB and SAFP outputs are active. If stopped, the car will not be allowed to move. If moving, the car will stop at the destination floor and cancel all calls. Cannot be bypassed.<br>System Verifies:<br>- Monitoring input MSAF low.<br>- M2MV bus has power.<br>Correction:<br>1. Verify M2MV, SAFB and SAFP through System IO > System Inputs. |
| No Door Zone Fault (272)      | DZ signal not seen at end of run. Fault-bypassed in Construction/Inspection.<br>Correction:<br>1. Verify DZ system input, PLD Diag > PLD Inputs & SPA Diag > SPA Flags.<br>2. View DZ LED on SCE-CPU board.                                                                                                                                                                                             |
| No Leveling Fault (274)       | No leveling inputs detected during run. Fault-bypassed in Construction/Inspection.<br>Code 1: ULM or DLM detected.<br>Code 2: Neither ULM nor DLM detected.<br>Correction:<br>1. Verify DLM, ULM system inputs, System IO > System Inputs.                                                                                                                                                              |



**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nudging (38)                  | The door is closing in nudging mode. Fault-bypassed in Construction.<br>System Verifies:<br>- Door Flags = Nudging<br>Correction:<br>1. Check for stuck PHE/DOB/Safe Edge.<br>2. Check for debris or obstruction in door track.<br>3. System IO > Programmed Inputs > PHE/DOB/SAFE EDGE.                                                                                                                           |
| Oil Press: Recall Fail (360)  | Hydro Only.                                                                                                                                                                                                                                                                                                                                                                                                        |
| Oil Pressure: Recall (102)    | Hydro Only. Loss of positive pressure detected. The car is recalling to the next available floor in the up direction. Cannot be bypassed.                                                                                                                                                                                                                                                                          |
| Oil Pressure: Shutdown (158)  | Hydro Only. Loss of positive pressure detected. The car has completed recall to the next available floor in the up direction. Cannot be bypassed.                                                                                                                                                                                                                                                                  |
| Oil Pressure: Switch On (121) | Hydro Only. Loss of positive pressure detected. The car will recall to the next available floor in the up direction. Cannot be bypassed.<br>Correction:<br>1. Verify proper function of valves, motor, and pump.<br>2. Check for obstructed return.                                                                                                                                                                |
| Oil Temp: Fire I (69)         | Hydro Only. An over temperature oil condition has been detected and the car is recalling on Fire Phase I. Car will lower to the bottom landing or to the next lower floor. Doors will open then close within 15 seconds. Door open button will remain operative. Cannot be bypassed.<br>System Verifies:<br>- Oil Data, Recall Done is not True<br>- Recall Data = Recall Oil Temp<br>- Mode of Operation = Fire I |
| Oil Temp: Fire II (70)        | Hydro Only. An over temperature oil condition has been detected and the car is operating on in-car firefighter operation. Car will operate per Elevator Safety Code. Cannot be bypassed.<br>System Verifies:<br>- Oil Data, Recall Done is not True<br>- Oil Data = Oil Fire Recall<br>- Recall Data = Recall Oil Temp<br>- Mode of Operation = Fire II                                                            |
| Oil Temp: On (123)            | Hydro Only. The oil (over) temperature input is active. Car will lower to the bottom landing, open its doors, and shut down. Manual reset required. Cannot be bypassed.<br>System Verifies:<br>- Oil Data = Oil Temp Recall and Oil Fire Recall are not true<br>- Oil Temp input true                                                                                                                              |
| Oil Temp: Recall (68)         | Hydro Only. Oil over temperature detected. Car will lower to bottom landing, doors will open. Doors will close within 15 seconds. DOB will remain active. Cannot be bypassed. Manual reset required.<br>System Verifies:<br>- Oil Data = Oil Temp Recall                                                                                                                                                           |
| Oil Temp: Recall Fail (72)    | Hydro Only. An over temperature oil condition has been detected and the car is unable to recall. Cannot be bypassed.<br>System Verifies:<br>- Oil Data = Oil Recall Fail<br>- Recall Data = Recall Oil Temp                                                                                                                                                                                                        |



## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Oil Temp: Shutdown (71)       | Hydro Only. Oil temperature recall is complete. Cannot be bypassed.<br>System Verifies:<br>- Oil Data = Recall Done<br>- Recall Data = Recall Oil Temp                                                                                                                                                                                                                                           |
| Oil Viscosity (103)           | Hydro Only. If a temperature sensor determines the oil is too cold and no calls are registered, the car will move to the bottom landing (doors closed) and the pump motor will run without valve coils energized to circulate and heat the oil. Fault-bypassed in Construction.<br>System Verifies:<br>- Oil Data = Oil VCI Recall<br>- Oil Data = Recall Done<br>- Recall Data = Recall Oil VCI |
| Out of Service (40)           | The COS Timer has elapsed subsequent to the Car Delayed Timer having already elapsed. Fault-bypassed in Construction/Inspection.<br>System Verifies:<br>- Car Flags - Car Out of Service<br>Correction:<br>1. Determine the cause of the delay.<br>2. See Car Delayed for additional information.                                                                                                |
| Overload (45)                 | Car is loaded beyond overload setting. Buzzer will sound and car will not leave floor until load is below the setting. Not generated in construction operation. Bypassed by FRS.<br>Correction:<br>1. If in error, verify no input is programmed for the Load Over function.<br>2. Otherwise, calibrate load weigher.<br>3. Verify status of input and input wiring.                             |
| Overload 2 (46)               | Car is loaded beyond overload setting. Buzzer will sound and car will not leave floor until load is below the setting. Not generated in construction operation. Not bypassed by FRS.<br>Correction:<br>1. If in error, verify no input is programmed for the Load Over 2 function.<br>2. Otherwise, calibrate load weigher.<br>3. Verify status of input and input wiring.                       |
| Parameter Load Error (456)    | The system failed to load specified parameters from either the SD card or USB drive.<br>Correction: Remove and reinsert the SD card or USB drive and repeat upload.                                                                                                                                                                                                                              |
| Parameter Range Fit (340)     | When loading stored parameters, some parameters did not pass the valid range check. This message is not necessarily a problem but parameter verification is recommended. This may occur when:<br>1. Changing software.<br>2. If a parameter is corrupted.<br>3. Using parameter files with different versions.                                                                                   |
| Parameter Storage Fault (130) | A fault occurred while parameters were being stored. Cannot be bypassed. The car will not be allowed to move.<br>Correction:<br>1. If fault occurred while updating software, reset processor C, repeat software update.<br>2. If fault does not clear, see error code under STORAGE ERROR (SPB DIAG, SPB NUMERIC). Contact MCE.                                                                 |
| Passcode Enabled (451)        | While the passcode remains active this message will be displayed on the Home screen and the car will not respond to hall calls. Please refer to <a href="#">Passcode (Restricted Mode) on page 1-58</a> .                                                                                                                                                                                        |

**Table 2.16 Touch Screen Event Listings**

| Event                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Passenger Mode (0)           | Passenger mode active.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| PHE Antinuis. Disabled (351) | Informational. PHE antinuisance has been disabled.                                                                                                                                                                                                                                                                                                                                                                                             |
| PHE Antinuisance (350)       | Informational. The photo eye antinuisance call threshold has been achieved; all car calls are canceled. Self resetting. Cannot be bypassed.                                                                                                                                                                                                                                                                                                    |
| PHE Bypass (32)              | The door photo eye/infrared detector has been active for a timer determined period and is now being bypassed. Fault-bypassed in Construction.<br>System Verifies:<br>- Door Flags = Photo Eye Bypassed<br>Correction:<br>1. If in error, verify no input programmed PHE.<br>2. Check the PHE input.<br>3. See related Stuck PHE and Bypass Stuck PHE events.                                                                                   |
| PHE Fail (33)                | The door photo eye/infrared detector has failed. Issued when the photo eye has been continuously activated for a predetermined time while the doors are fully closed. Fault-bypassed in Construction.<br>System Verifies:<br>- Door Flags = Photo Eye Failed<br>Correction:<br>1. If in error, verify no input programmed if PHE not used.<br>2. Check that input is properly wired and programmed.<br>3. System IO > Programmed Inputs > PHE. |
| PLD RX Communication (237)   | No communication received from PLD. Car not allowed to move. Fault cannot be bypassed. A forced bootloader may resolve this, otherwise a board replacement may be necessary.                                                                                                                                                                                                                                                                   |
| PLD RX Message (239)         | Message from PLD not properly formed. Car not allowed to move. Fault cannot be bypassed. A forced bootloader may resolve this, otherwise a board replacement may be necessary.                                                                                                                                                                                                                                                                 |
| PLD TX Communication (236)   | Unable to communicate with PLD. Car not allowed to move. Fault cannot be bypassed. A forced bootloader may resolve this, otherwise a board replacement may be necessary.                                                                                                                                                                                                                                                                       |
| PLD TX Message (238)         | Message sent to PLD not properly formed. Car not allowed to move. Fault cannot be bypassed. A forced bootloader may resolve this, otherwise a board replacement may be necessary.                                                                                                                                                                                                                                                              |
| PLD Write Fault (Edge) (218) | Initiated by LS-EDGE-EL landing system. The ETS trip value cannot be written to the landing system PLD. Cannot be bypassed.<br>Correction:<br>1. PLD hardware has failed or software is not loaded.<br>2. Verify software versions for LS-EDGE-EL, Status Info > Version Info.                                                                                                                                                                 |
| Positioning (9)              | Car position has not been established. The car is reestablishing position. Fault-bypassed in Construction/Inspection.<br>System Verifies:<br>- Car Flag Correction is active.<br>- Car is not on Inspection or construction operation.<br>- Car is on Passenger mode<br>Correction:<br>1. Car will move to reestablish position at a landing.                                                                                                  |
| Processing Car Calls (291)   | Generated while car is continuing to respond to registered car calls subsequent to activation of capture mode (Pretest switch on SCE-CPU) or a recall switch that is configured to answer existing car calls. Once calls are satisfied, the elevator will recall and shut down awaiting test switch activation.                                                                                                                                |

## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PTI Recall (100)              | The car is recalling on emergency power operation. Fault-bypassed in Construction/Inspection.<br>Correction:<br>1. View System IO > Programmed Inputs > PTI.                                                                                                                                                                                                                                   |
| PTI Shutdown (101)            | The car has stopped due to power loss. Fault-bypassed in Construction/Inspection.<br>System Verifies:<br>- Power Transfer Data = PTI Shutdown<br>Correction:<br>1. View System IO > Programmed Inputs > PTI.                                                                                                                                                                                   |
| Pump Power is Off (348)       | Hydro Only. Power has been removed from the pump by one or more of the following ESC, EB3B, EB3P, EB4A, or EB4P. Refer to your job prints.                                                                                                                                                                                                                                                     |
| Pump Unable to Start (324)    | Hydro Only. The pump failed to start when requested.<br>Correction:<br>1. Verify Pump Mon, SPB Diag, SPB Flags, is initially off but on once movement is initiated (Pump Enable is on).<br>2. Verify Config 01, Up to Speed Delay provides enough time for pump to reach operating speed.<br>3. Verify Pump at Speed (SPB Diag, SPB Flags) is initially off but on once movement is initiated. |
| Quad Sensor Loss (Edge) (217) | Initiated by LS-EDGE-EL landing system. Indicates that one pair of quad differential signals from the landing sensor to the controller has failed. Fault-bypassed in Construction/Inspection.<br>Correction:<br>1. A hall effect sensor may have failed or the bias magnet is broken or defective.                                                                                             |
| Quadrature Loss CH-B (230)    | Initiated by LS-EDGE-EL landing system. Indicates that the controller is not receiving the B channel of the quadrature signal stream from the landing sensor. Fault-bypassed in Construction/Inspection.                                                                                                                                                                                       |
| Quadrature Offset CH-B (366)  | Initiated by LS-EDGE-EL landing system. Indicates Channel B offset from Channel A is not correct. Bypassed in Construction or Inspection Bypass operation.                                                                                                                                                                                                                                     |
| Random Calls Generator (18)   | The random call generator has been activated. This generator is used to exercise the elevator using random calls.<br>Correction: Check parameter setting.                                                                                                                                                                                                                                      |
| Random Car Calls Gen (156)    | The random car call generator has been activated. This generator is used to exercise the elevator using random car calls.<br>Correction: Check parameter setting.                                                                                                                                                                                                                              |
| Random Hall Calls Gen (157)   | The random hall call generator has been activated. This generator is used to exercise the elevator using random hall calls.<br>Correction: Check parameter setting.                                                                                                                                                                                                                            |
| Recall Complete (453)         | Car has completed recall for the specified mode of operation and is at the user defined recall floor and has completed the configured door operation at that floor. Fault-bypassed in Construction/Inspection.<br>Correction:<br>1. If in error, verify inputs and programming (Config 01 > Configure Spare Inputs) for specified recall action.                                               |
| Recall Done (292) (442)       | Car has completed recall operation.<br>Correction: Check recall input.                                                                                                                                                                                                                                                                                                                         |

**Table 2.16 Touch Screen Event Listings**

| Event                                                                                                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recall Done Switch 1 (116)<br>Recall Done Switch 2 (117)<br>Recall Done Switch 3 (118)<br>Recall Done Switch 4 (119) | The car has completed recall in response to the indicated recall switch and has completed the configured door operation at the floor. Cannot be bypassed.<br>System Verifies:<br>- Recall Data = Recall Switch 'n'<br>- Recall Data = Complete<br>Correction:<br>1. If in error, verify inputs and programming (Config 01 > Configure Spare Inputs) for specified recall action.                                                                                                                                                                                                                                                                                                                             |
| Recall Sw: Bypassed (373)                                                                                            | Informational. An active recall switch is bypassed due to a higher mode of operation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Recall Switch 1 (41)<br>Recall Switch 2 (42)<br>Recall Switch 3 (43)<br>Recall Switch 4 (44)                         | Recall switch "n" has been activated. Fault-bypassed in Construction.<br>System Verifies:<br>- Mode of operation = Recall Switch 'n'<br>- Recall Data Type = Recall Switch 'n'<br>- Recall Data, Complete is not True.<br>Correction:<br>1. If in error, verify no input is programmed (Config 01 > Configure Spare Inputs) for this recall switch.<br>2. Otherwise, verify switch mechanically and electrically.<br>3. Verify state of input and input wiring.                                                                                                                                                                                                                                              |
| Recalling (5)                                                                                                        | Car is recalling to selected recall floor (fire service, Pretest operation, Aux Power, Recalling switches, Floor operation, or PTI input). Fault-bypassed in Construction/Inspection.<br>Correction:<br>1. If in error, verify that the assigned recall input (System IO > Programmed Inputs) is inactive.<br>2. Verify user defined recall floor.                                                                                                                                                                                                                                                                                                                                                           |
| Recalling Switch 1 (112)<br>Recalling Switch 2 (113)<br>Recalling Switch 3 (114)<br>Recalling Switch 4 (115)         | The indicated recall switch is active. Hall calls are canceled or reassigned. Car calls disposition is according to user settings for the switch. Cannot be bypassed.<br>Correction:<br>1. If in error, verify that the input is wired correctly. If not used, verify that the input is not programmed; (System IO > Programmed Inputs).                                                                                                                                                                                                                                                                                                                                                                     |
| Resync. Recall (461)                                                                                                 | Beginning on the day(s) and time designated by the RESYNCHRONIZATION DAYS and RESYNCHRONIZATION TIME parameters, when the car has been idle for 30 seconds, a RESYNC. RECALL begins and the car is recalled to the bottom floor. During the recall, a car or hall call will abort the recall. Once the car is again idle, the recall is again attempted. This cycle continues for one hour or until a successful resynchronization occurs.                                                                                                                                                                                                                                                                   |
| Resynchronization (459)                                                                                              | Once the car reaches the bottom floor due to a RESYNC. RECALL, the car is taken out of service (no car or hall calls will be answered), the bottom terminal limits are bypassed and the DSE valve remains open for 30 seconds to allow the car to descend onto the buffers. The car is then returned to the bottom floor, all safety systems are returned to normal and the car is returned to passenger service. If, prior to completing Resynchronization, the Mode is changed to Inspection or the Stop switch is activated, the operation is aborted and the car is allowed to return to the bottom floor. If all safety devices have been returned to normal, the car is returned to passenger service. |



## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SAFH Input Low (163)          | The hoistway safety string input is low. Car will perform an emergency stop or, if at a floor, will not move. Doors remain as they are.<br>System Verifies:<br>- SAFH Input is low<br>- SAFC input high<br>Correction:<br>1. If in error verify input and input devices mechanically and electrically.                                                                                 |
| Saving Dispatch Params (377)  | Appears when dispatching related parameters are being saved. Informational.                                                                                                                                                                                                                                                                                                            |
| Saving Other Car Params (338) | Appears when parameters communicated by other car in duplex pair are being saved. Informational.                                                                                                                                                                                                                                                                                       |
| SD Card Error (250)           | The micro-SD card used for event logging is damaged or improperly formatted. Remove and reseal the card. Replace the card with a new card of like capacity if required. Cannot be bypassed.                                                                                                                                                                                            |
| SD File System Error (454)    | System has determined that data sent to micro-SD card on SCE-CPU is invalid.<br>Correction: Remove and reinsert micro-SD card and repeat file transfer. If the problem persists, a replacement micro-SD card may be required.                                                                                                                                                          |
| SE Bypass (34)                | The door safe edge input has been bypassed. See SE Fail. Fault-bypassed in Construction.<br>System Verifies:<br>- Door Flags = Safe Edge Bypassed<br>Correction:<br>1. Verify no Safe Edge input programmed if safe edge is not used.<br>2. See SE Fail (Config 01 > Configure Spare Inputs).                                                                                          |
| SE Fail (35)                  | The door safe edge has failed. Issued when the safe edge has been continuously activated for a predetermined period while the doors are fully closed. Fault-bypassed in Construction.<br>System Verifies:<br>- Door Flags = Safe Edge Failed<br>Correction:<br>1. Check for obstruction.<br>2. Check that input is properly wired and programmed (Config 01 > Configure Spare Inputs). |
| Security Disabled (372)       | Car call security has been disabled. Informational.                                                                                                                                                                                                                                                                                                                                    |
| Simplex Car ID Error (457)    | Generated if Number of Cars = 1 and Car ID is anything other than 1.                                                                                                                                                                                                                                                                                                                   |
| SPA: LS-EDGE is Offline (223) | SPA has detected loss of communication with LS-EDGE.<br>Correction:<br>1. Check CAN1 and CAN2 connections on SCE-CPU.<br>2. Check connections on LS-EDGE.                                                                                                                                                                                                                              |
| SPA: PLD Osc Stopped (261)    | Safety Processor A is reporting that the timing oscillator for PLD U1 on the SCE-CPU board has failed. Cannot be bypassed.<br>Correction:<br>1. Press the RSTP button on the SCE-CPU board.<br>2. If the PLD fails to restart, contact MCE.                                                                                                                                            |
| SPA: PLD Read Error (165)     | The PLD, responsible for redundant error checking along with the safety microprocessors, has made a read error as reported by Safety Processor A (SPA). Cannot be bypassed.<br>System Verifies:<br>- PLD to SPA Data = Rx Error<br>Correction:<br>1. Cycle power to the controller.                                                                                                    |



**Table 2.16 Touch Screen Event Listings**

| <b>Event</b>                  | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SPA: SPB is Offline (12)      | Safety processor A reports safety processor B is not communicating. The car will perform an emergency stop and will not be allowed to move. All calls will be canceled and the doors will not be allowed to move. Cannot be bypassed.<br>System Verifies:<br>- SPB sequence numbers offline<br>Correction:<br>1. Press the SCE-CPU board RSTB button.<br>2. If the processor resets, monitor activity for recurrence.                                                           |
| SPA: SPC is Offline (170)     | Safety processor A reports safety processor C is not communicating. The car will perform an emergency stop and will not be allowed to move. All calls will be canceled and the doors will not be allowed to move. May occur subsequent to an unsuccessful parameter update. Cannot be bypassed.<br>System Verifies:<br>- SPC sequence numbers offline<br>Correction:<br>1. Press the SCE-CPU board RSTC button.<br>2. If the processor resets, monitor activity for recurrence. |
| SPB Powerup/Reset (367)       | Safety Processor B is resetting due to power up. The car is not allowed to move. Doors will remain in current state. Cannot be bypassed This is a normal event during power up. Informational.                                                                                                                                                                                                                                                                                  |
| SPB: LS-EDGE is Offline (229) | SPB has detected loss of communication with LS-EDGE.<br>Correction:<br>1. Check CAN1 and CAN2 connections on SCE-CPU.<br>2. Check connections on LS-EDGE.                                                                                                                                                                                                                                                                                                                       |
| SPB: Parameter Update (258)   | Parameters are being updated. Cannot be bypassed.<br>Correction:<br>1. If in error, cycle power to the controller.                                                                                                                                                                                                                                                                                                                                                              |
| SPB: SPA Comm Sync (259)      | Informational. SPB has established communication with SPA.                                                                                                                                                                                                                                                                                                                                                                                                                      |
| SPB: SPA Heartbeat ()         | SPB cannot detect SPA heartbeat signal. Cannot be bypassed.<br>Correction:<br>1. Reset SPA (RSTA on SCE-CPU).<br>2. If problem does not clear, cycle system power.                                                                                                                                                                                                                                                                                                              |
| SPB: SPA is Offline (145)     | Safety processor B reports safety processor A is not communicating. The car will perform an emergency stop and will not be allowed to move. All calls will be canceled and the doors will not be allowed to move. May occur subsequent to an unsuccessful parameter update. Cannot be bypassed.<br>System Verifies:<br>- SPA sequence numbers offline<br>Correction:<br>1. Press SCE-CPU board RSTA button.<br>2. If the processor resets, monitor activity for recurrence.     |
| SPB: SPC Comm Sync (260)      | Informational. SPB has established contact with SPC.                                                                                                                                                                                                                                                                                                                                                                                                                            |

## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SPB: SPC is Offline (148)  | Safety processor B reports safety processor C is not communicating. The car will perform an emergency stop and will not be allowed to move. All calls will be canceled and the doors will not be allowed to move. May occur subsequent to an unsuccessful parameter update. Cannot be bypassed.<br>System Verifies:<br>- SPC sequence numbers offline<br>Correction:<br>1. Press SCE-CPU board RSTC button.<br>2. If the processor resets, monitor activity for recurrence.                                              |
| SPC Started Up (168)       | SPC reports it has booted up. Cannot be bypassed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| SPC: 3HN Comm Loss (255)   | Safety processor C is reporting that serial hall call communications have been lost. The system will begin emergency dispatch operation. Cannot be bypassed.<br>Correction:<br>1. Check power to hall call bus (fuse F24HWY on SCE-UPD board).                                                                                                                                                                                                                                                                           |
| SPC: CAN 3 Comm Loss (171) | Safety processor C is reporting CAN 3 (Serial Hall Call) communications have been lost. Cannot be bypassed.<br>Correction:<br>1. Check CAN connections for hall call bus (CANH3/CANL3) on SCE-CPU.                                                                                                                                                                                                                                                                                                                       |
| SPC: CAN Comm Loss (224)   | Safety processor C is reporting CAN communications have been lost. Cannot be bypassed.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| SPC: SPA is Offline (226)  | Safety processor C is reporting that Safety Processor A is not communicating. The car will perform an emergency stop and will not be allowed to move. All calls will be canceled and the doors will not be allowed to move. May occur subsequent to an unsuccessful parameter update. Cannot be bypassed.<br>System Verifies:<br>- SPA sequence numbers offline<br>Correction:<br>1. Press SCE-CPU board RSTA button.<br>2. If the processor resets, monitor activity for recurrence.                                    |
| SPC: SPB is Offline (227)  | Safety processor C is reporting that Safety Processor B is not communicating. The car will perform an emergency stop and will not be allowed to move. All calls will be canceled and the doors will not be allowed to move. May occur subsequent to an unsuccessful parameter update. Cannot be bypassed.<br>System Verifies:<br>- SPB sequence numbers offline<br>Correction:<br>1. Press the SCE-CPU board RSTB button.<br>2. If the processor resets, monitor activity for recurrence.                                |
| Stuck Car Call (104)       | A timer (10 seconds) limits the amount of time a car will be held at a floor due to a defective or stuck car call. When the timer expires, call demand at another floor will cause the defective call to be ignored and the car will continue to provide service. Fault-bypassed in Construction/Inspection.<br>System Verifies:<br>- Car Flags, Stuck Car Call Timer Front = Timer Elapsed<br>Correction:<br>1. Verify car call input not continuously activated. (See Register Calls screen and/or programmed inputs.) |

**Table 2.16 Touch Screen Event Listings**

| Event                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stuck Door Open Button (161) | The door open button has been detected as being pressed continuously. Correction: Check door open button, door open button input and diagnostic flag for DOB under System IO > Programmed Inputs > screen 2.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Stuck Door Zone Fault (271)  | Door zone did not go low during run. Fault-bypassed in Construction/Inspection.<br>Correction:<br>1. Verify activity.<br>2. Check wiring.<br>3. Verify DZ flag activity at Utilities > Landing System Utilities > Landing System View to see that DZ turns off when car is between floors.                                                                                                                                                                                                                                                                                                                                      |
| Stuck Down Hall Call (357)   | System has detected a sticking down hall call button.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Stuck Leveling Fault (273)   | Leveling signal did not transition low at end of run. ULM and DLM are both active. Fault-bypassed in Construction/Inspection.<br>Correction:<br>1. Verify, UTILS > Landing System View > ULMF or DLMF.<br>2. Verify landing system function and wiring.                                                                                                                                                                                                                                                                                                                                                                         |
| Stuck Photo Eye (159)        | Photo eye input continuously active. If Bypass Stuck PHE (Config 01) is enabled, the controller will ignore the PHE and close the doors after the Stuck PHE Timer elapses or when the Car Delayed timer expires, whichever comes first. Fault-bypassed in Construction/Inspection.<br>System Verifies:<br>- Door Flags = Stuck Photo Eye Timer Elapsed<br>- Door Flags, Photo Eye Bypassed and Photo Eye Failed are not true.<br>Correction:<br>1. Verify PHE status, System IO, Programmed Inputs.<br>2. If no PHE is installed, PHE input should not be programmed.<br>3. Verify function of PHE device.                      |
| Stuck Safe Edge (160)        | Safe edge input continuously active. If Bypass Stuck Safe Edge (Config 01) is enabled, the controller will ignore the SE and close the doors after the Stuck SE Timer elapses or when the Car Delayed timer expires, whichever comes first. Fault-bypassed in Construction/Inspection.<br>System Verifies:<br>- Door Flags, Stuck Safe Edge Timer = Elapsed<br>- Door Flags Safety Edge Bypassed and Safe Edge Failed are not true.<br>Correction:<br>1. Verify Safe Edge status, System IO > Programmed Inputs.<br>2. If no Safe Edge is installed, input should not be programmed.<br>3. Verify function of Safe Edge device. |
| Stuck Sensor (Edge) (219)    | Initiated by the LS-EDGE-EL landing system. A leveling or terminal sensor is not changing state. Fault-bypassed in Construction/Inspection.<br>Correction:<br>1. Verify the LED indicators (UTILS > LS View) show state changes while traversing door zones, ETS, or Terminal magnets.<br>2. Replace LS-EDGE-EL tape reader.                                                                                                                                                                                                                                                                                                    |
| Stuck Up Hall Call (356)     | System has detected a sticking up hall call button.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Terminal Switch Learn (386)  | A terminal switch learn operation is in progress.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Terminal Sync (Edge) (222)   | Initiated by the LS-EDGE-EL landing system. Indicates that the landing system has lost position and is performing a terminal synch operation. Fault-bypassed in Construction.                                                                                                                                                                                                                                                                                                                                                                                                                                                   |



## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Mode (3)                 | The controller is operating in Test Mode. This mode allows the car to be run at contract speed with door opening disabled to facilitate testing. Hall calls are not registered. Fault-bypassed in Construction/Inspection.<br>System Verifies:<br>- Mode of operation = Test<br>Correction:<br>1. If Test mode is not selected, check System IO > System Inputs, Test.<br>2. Verify Test/Pretest switch not in Test position.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Top Deviation (Edge) (221)    | Initiated by the LS-EDGE-EL landing system. LS-EDGE-EL encountered terminal magnets that do not match the learned positions. Fault-bypassed in Construction/Inspection.<br>Correction:<br>1. Verify magnets for terminals have not been changed.<br>2. Relearn terminal magnet locations by performing a hoistway learn operation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| UFE/PM Stuck Off (142)        | Up Fast Enable remains off when commanded to be active. No bypass in any mode.<br>Correction:<br>1. Verify UFE/PM output is correctly connected to the Up Fast Valve coil.<br>2. Verify function of Up Fast Valve.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| UFE/PM Stuck On (141)         | Up Fast Enable remains on when commanded to be off. No bypass in any mode.<br>Correction:<br>1. Verify UFE/PM output is correctly connected to the Up Fast Valve coil.<br>2. Verify function of Up Fast Valve.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Unknown Fault (166)           | Generated by safety processor SPC. Appears only in the Event Log. SPC received an unidentified error code. May occur after unsuccessful software update. Cannot be bypassed.<br>Correction:<br>1. If after unsuccessful update, repeat update procedure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Up Valve Unable to Open (152) | Hydro Only. The up fast/slow valve failed to open when requested.<br>Correction:<br>1. Verify SPB Diag, SPB Flags Pump At Speed is initially off but on once movement is initiated.<br>2. Verify Up Dir Lim is on.<br>3. Verify Up Slow Lim is on if high speed movement is initiated (Up Fast Ena on). Otherwise, it may be on or off.<br>4. Verify Up Fast Mon is initially on but off once high speed movement is initiated (Up Fast Ena on). Otherwise, it should remain on.<br>5. Verify Up Slow Mon is initially on but off once high speed movement is initiated with a standard valve (both Up Fast Ena and Up Slow Ena on). Otherwise, Up Slow Mon should remain on once high speed movement is initiated with a TKE/Dover valve (only Up Fast Ena on).<br>6. Verify Up Slow Mon is initially on but off once slow speed movement is initiated (only Up Slow Ena on).<br>NOTE: SPB DIAG, SPB FLAGS: If 2LS bus is on, Up Fast Mon and Up Slow Mon should be opposite polarity of Up Fast Ena and Up Slow Ena respectively. |
| USB Drive Inserted (438)      | Momentary message. A USB drive has been inserted into the port on the SCE-CPU board.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| USB Drive Removed (439)       | Momentary message. A USB drive has been removed from the port on the SCE-CPU board.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

**Table 2.16 Touch Screen Event Listings**

| Event                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| USB File System Error (455) | The system has detected a problem with the USB drive mounted on the SCE-CPU board.<br>Correction:<br>1. Remove and reinsert USB drive.<br>2. Replace USB drive.                                                                                                                                                                                                                                                                                                                                                   |
| USE/BR Stuck Off (147)      | The Up Slow Enable/Brake Contactor output is stuck off.<br>Correction:<br>1. Verify status of output.<br>2. Check connection of Up Slow valve at terminal USE/BR.                                                                                                                                                                                                                                                                                                                                                 |
| USE/BR Stuck On (146)       | The Up Slow Enable/Brake Contactor output is stuck on<br>Correction:<br>1. Verify status of output.<br>2. Check connection of Up Slow valve at terminal USE/BR.                                                                                                                                                                                                                                                                                                                                                   |
| USL1 is Low (371)           | Informational. USL1 input is low.<br>Correction:<br>1. If in error, verify function of switch (if physical) and/or input.                                                                                                                                                                                                                                                                                                                                                                                         |
| USL1 Position Low (402)     | The car encountered the USL1 switch at a position lower than that learned during the hoistway learn operation. The car will perform an emergency slowdown then proceed at correction speed to the landing.<br>Correction:<br>1. Verify position of switch (software or physical).<br>2. Repeat hoistway learn operation (Utils > Landing System Utilities > Terminal Switch Learn).                                                                                                                               |
| USL1/USL2 Mismatch (151)    | Hydro Only. USL1 and USL2 are in different states. The car will relevel into the next floor and remove itself from service.<br>Correction:<br>1. Verify switch status and connections.                                                                                                                                                                                                                                                                                                                            |
| USL2 Position Low (404)     | Traction Only. The car encountered the USL2 switch at a position lower than that learned during the learn operation. The car will perform an emergency slowdown then proceed at correction speed to the landing.<br>1. Verify position of switch (software or physical).<br>2. Repeat learn operation (Utils > Landing System Utilities > Terminal Switch Learn).                                                                                                                                                 |
| USLx and DSLx are Low (8)   | Named Up and Down Slow Limit switches are low. The car will perform an emergency stop and will not be allowed to move. All calls will be canceled. If in a door zone the doors will be cycled to allow passengers to exit. Fault-bypassed in Construction.<br>System Verifies:<br>- Limit inputs USL and DSL low.<br>- 2 bus has power.<br>Correction:<br>1. Verify switches mechanically and electrically.<br>2. Verify input connections.<br>3. View System IO > System Inputs, USL and DSL for correct status. |



## Configuration and Troubleshooting

**Table 2.16 Touch Screen Event Listings**

| Event                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UTL and DSLx Are Low (313)   | <p>The Up Terminal Limit switch and the named Down Slow Limit are both low (open). If moving up, the car will perform an emergency stop. If moving down, car will drop high speed, locate a floor, and cycle doors to allow passengers to exit. Fault-bypassed in Construction.</p> <p>System Verifies:</p> <ul style="list-style-type: none"> <li>- Limit inputs UTL and DSL low.</li> <li>- 2 bus has power.</li> </ul> <p>Correction:</p> <ol style="list-style-type: none"> <li>1. Verify switches mechanically and electrically.</li> <li>2. Verify input connections.</li> <li>3. View System IO &gt; System Inputs, UTL and DSL for correct status.</li> </ol>                                          |
| UTL and DTL are Low (11)     | <p>The Up and Down Terminal Limit switches are both low (open). The car will perform an emergency stop and will not be allowed to move. All calls will be canceled. If in a door zone, doors will be cycled to allow passengers to exit. Cannot be bypassed.</p> <p>System Verifies:</p> <ul style="list-style-type: none"> <li>- Limit inputs UTL and DTL low.</li> <li>- 2 bus has power.</li> </ul> <p>Correction:</p> <ol style="list-style-type: none"> <li>1. Verify switches mechanically and electrically.</li> <li>2. Verify input connections.</li> <li>3. View System IO &gt; System Inputs, UTL and DTL for correct status.</li> </ol>                                                             |
| UTL is Low (154)             | <p>The Up Terminal Limit switch has opened. If moving up, the car will perform an emergency stop. This switch should not open unless the car overshoots the terminal and opens the switch. The open switch prevents further movement towards the terminal. Cannot be bypassed.</p> <p>System Verifies:</p> <ul style="list-style-type: none"> <li>- 2 bus has power.</li> <li>- UTL input is low.</li> </ul> <p>Correction:</p> <ol style="list-style-type: none"> <li>1. If in error, verify switches and connections mechanically and electrically.</li> <li>2. Check the state of the System IO &gt; System Inputs &gt; UTL, against the state of the switch (touchscreen landing system flags).</li> </ol> |
| Valve Time Out Shutdown (89) | <p>Hydro Only. A hydraulic valve has been energized for an excessive period of time with the car moving down. Motor/Valve Limit timer may be set too low. If in motion, the car will stop immediately. The fault must be manually cleared (power cycle or place on Inspection) before operation resumes. Cannot be bypassed.</p> <p>System Verifies:</p> <ul style="list-style-type: none"> <li>- Motor Protection Data = VLT Fault</li> </ul> <p>Correction:</p> <ol style="list-style-type: none"> <li>1. Verify valve wiring is intact and is being energized.</li> <li>2. Troubleshoot the hydraulic power unit.</li> </ol>                                                                                |



**Table 2.16 Touch Screen Event Listings**

| Event                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Viscosity Switch: On (124)   | Hydro Only. The programmed VCI switch input is on. Oil flow indicates variation in oil viscosity outside acceptable limits and the car is lowering to the nearest floor below its current position or, if stopped in a door zone, will remain at the floor. Once safely in a door zone, the car will open its doors and remove itself from service. If a temperature sensor determines the oil is too cold and no calls are registered, the car will move to the bottom landing (doors closed) and the pump motor will run without valve coils energized to circulate and heat the oil. Fault-bypassed in Construction.<br>System Verifies:<br>- Oil Data = Oil viscosity input is programmed<br>- Oil Data = Oil VCI recall is not true |
| Waiting for In-Car Sw (443)  | Informational. The car is at a recall floor with doors open awaiting activation of the current mode of operation in-car switch.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Warning: Flts Bypassed (266) | FAULTS ARE BEING BYPASSED. The fault bypass jumper on the SCE-CPU board is in the BYPASS position and Utilities/Fault Bypass is enabled for the active mode of operation (UTILS > Construct and Bypass Faults).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |



## Configuration and Troubleshooting

### Event Log Viewing

Messages helpful to operational diagnostics are stored in an event log on the micro SD card plugged in to the SCE-CPU board. The event log may be viewed through the on-board touch screen or the web interface.

The event files are in .csv (comma separated values) format. These files may be read as a continuous text file in applications like Notepad or Wordpad or in a table format when opened using Microsoft Word or Excel.

In instances when you are working with MCE Technical Support, log files may be easily attached to an email and sent to the MCE Technician for examination.

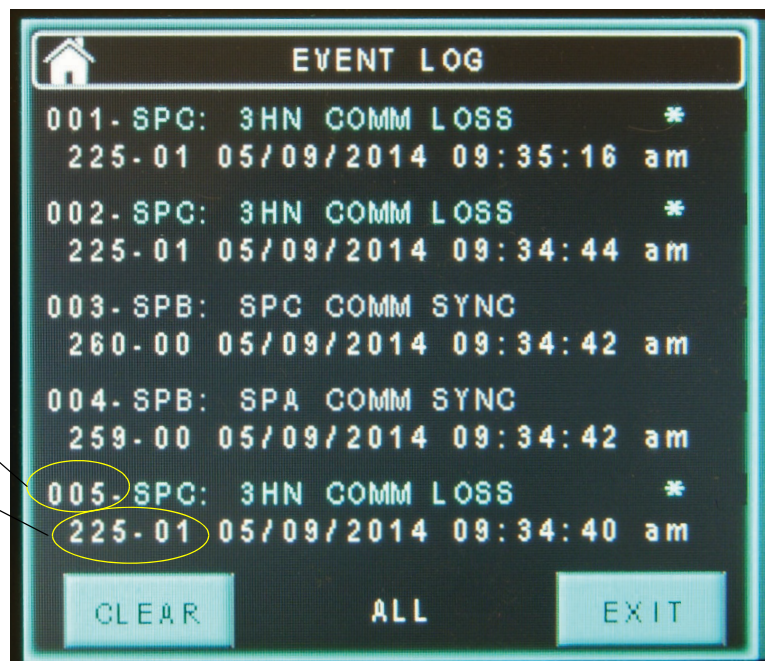
### Touch Screen Log Access

1. Scroll down the touch screen to the System Diag tab.
2. Select Event Log.

Some events provide both ON and OFF state messages. In these instances, there will be an asterisk (\*) at the end of the fault text to let you know that a second, OFF state, event (gray) will be in the log.

Event log entries are in color:  
 Red: Error. Will cause an "Excessive" faults condition if too many occur in a 24 hour period.  
 Yellow: Fault  
 Blue: Informational  
 Gray: Inactive

Position in list #  
 Fault Number - Fault Code



### Filtering

A button at the bottom center of the screen allows you to filter the event display.

### PC Log Access

Through a PC, open the web browser and enter the IP address of the controller in the URL box. When contact with the controller is established, a tabbed Element Series interface will appear.

1. Click on the Faults tab.
2. A list of any active faults will appear, followed by the system Event Log.



## *Maintenance Plan Information*

### **In this Section**

This section provides information to help you maintain the Element installation and to incorporate Element into your Maintenance Control Plan.

- 8.6.1.2.2  
Where a defective part directly affecting the safety of the operation is identified, the equipment shall be taken out of service until the defective part has been adjusted, repaired, or replaced.
- Controller [page 3-2](#)
- SmarTraq Door Operator [page 3-5](#)
- HAPS Hydraulic Auxiliary Power Supply [page 3-10](#)

### **Maintenance Intervals**

The maintenance intervals provided here can be affected by actual site conditions. Consider:

- equipment age, condition, and accumulated wear
- design and inherent quality of the equipment
- usage
- environmental conditions
- improved technology
- the manufacturer's recommendations for any SIL rated devices or circuits



## Controller

### Monthly

#### Controller General

- 8.6.1.6.3
  - Clean the exterior and interior of the controller as necessary using a shop vacuum with appropriate attachments and a soft dry cloth.
  - Visually inspect electrical and mechanical connections. Correct if necessary.
  - Review the controller event log for recurring faults indicative of a subsystem problem, i.e., door systems, landing systems, car and hall calls, etc.
  - Listen for bearing noise from drive cooling fan (if present). Clean/repair/replace as required.

#### Air Conditioned Cabinets

- Inspect and clean drain tubes.
- Visually inspect filters. Clean/replace as required.

#### Load Weighers

##### MCE Isolated Platform

- With an empty car, verify voltage between LW+ and LW- within 0.3 to 1.0 VDC.
- Adjust per controller manual or installation instruction if required.

#### Lead/Acid Batteries

Wet cell, lead/acid batteries may be used to supply power to rescue or other power-loss backup systems. Replace battery as necessary, generally every three to five years.

- Check connections for corrosion. Remove, clean, and replace as necessary.
- Visually inspect battery bin for signs of acid leakage. If leakage has occurred, remove battery; clean and/or refinish bin; replace battery.
- Using a voltmeter, verify battery voltage is not below rated output.

#### Car

- 8.6.4.16 Stopping Accuracy
  - Verify car stops without releveling, within +/- 0.25 inches of level at all floors in both up and down directions where applicable.

## **Every Six Months**

### **Controller General**

- Monthly routine
- Clean and inspect drive cooling fan. Verify proper operation.
- If available, check drive fault log. Troubleshoot per drive manual.
- Verify connection integrity on drives, starters, line contactors, and discrete relays.
- While the car is operating, check for “flashing” or buzzing from contactors or discrete relays. Replace defective components.

### **Air Conditioned Cabinets**

- Monthly routine
- Replace filters.

### **Load Weighers**

- Monthly routine
- EMCO rope tension weigher: Perform zero calibration per controller manual.
- K-Tech: Verify load adjustments per controller manual.

### **Lead/Acid Batteries**

- Monthly routine

### **Car**

- Monthly routine

### **Landing System**

- Check mounting integrity and alignment.
- Check for wear on sensor head tape guides. Replace if needed.
- Visually inspect sensors. Clean if needed.
- Inspect tape. Clean with soft, lint-free cloth.

### **Power Supplies**

- Check supply voltages at supply or at board testpoints. Adjust or replace if needed.

### **Brake**

- Verify brake pick and hold voltage.
- Verify pick, running clearance, and drop.
- Verify minimum 95% contact between shoe and braking surface when dropped.
- Verify brake will hold 125% of rated load.
- Verify brake position monitor switch if present.



## Maintenance Plan Information

### Yearly

#### Controller General

- 6 month routine
- Verify screw termination integrity. PC terminals - 7 inch pounds.
- Verify integrity of power, isolation transformer, and filter assembly connections.
- Fuses: Verify cleanliness and physical integrity. Check for voltage drop across fuse greater than 1.0 V (AC or DC) - replace if present. MCE fuse locations are labeled - always replace with the designated type and value.

#### Air Conditioned Cabinets

- 6 month routine

#### Load Weighers

- 6 month routine

#### Lead/Acid Batteries

- 6 month routine

#### Board-mounted Batteries

These batteries are used to maintain memory over power shutdown.

- Measure voltage with controller power off. See manual for specific replacement recommendation. Generally 90% or less of rated voltage ([page 2-36](#)).

#### Car

- 6 month routine

#### Landing System

- 6 month routine

#### Power Supplies

- 6 month routine

#### Brake

- 6 month routine



## **SmarTraq Door Operator**

- Check and adjust as needed:
  - Motor V-belt: Mid-way between the pulleys, the belt should deflect 1/2-inch (13mm) under moderate pressure. The belt should not slip. Replace if cracked or worn.
  - Open and close stop rollers: Check for flat spots. Rotate or replace as needed.
  - Chain tension: Adjust tension roller to remove slack if needed.
  - Urethane dampening strips: Check urethane strips around chain pulley and sprocket. Replace if broken. (These strips reduce operator noise.)
  - Door linkage bearings: Oil or grease once a year.
  - Clutch cable: Check tension. Adjust if undue slack.
  - Door bumpers: Check for distortion or cracking. Replace if needed.
  - Check that operator and motor mountings are tight and true.
  - Clean, but do not lubricate chain. (Excess can drip down onto passengers.)

## **Door Closing Force**

8.6.4.13.2 Refer to the following tables:



## Maintenance Plan Information

**Table 3.1 Center Parting, No Nudging**

| MINIMUM CLOSING TIME FOR CENTER PARTING DOORS WITHOUT RE-OPENING DEVICE (NUDGING) (sec)    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
|--------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| Door Opening Width (inch)<br>(1) Code Zone Distance (inch)                                 | 26   | 28   | 30   | 32   | 34   | 36   | 38   | 40   | 42   | 44   | 46   | 48   | 50   | 52   | 54   | 56   | 58   | 60   | 62   | 64   | 66   |      |  |
|                                                                                            | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   | 31   |      |  |
| (2) Combined Weight<br>of Car and Hoistway<br>Doors and All<br>Attached Equipment<br>(lbs) | 100  | 0.72 | 0.79 | 0.85 | 0.92 | 0.99 | 1.05 | 1.12 | 1.18 | 1.25 | 1.31 | 1.38 | 1.44 | 1.51 | 1.58 | 1.64 | 1.71 | 1.77 | 1.84 | 1.90 | 1.97 | 2.04 |  |
|                                                                                            | 150  | 0.88 | 0.97 | 1.05 | 1.13 | 1.21 | 1.29 | 1.37 | 1.45 | 1.53 | 1.61 | 1.69 | 1.77 | 1.85 | 1.93 | 2.01 | 2.09 | 2.17 | 2.25 | 2.33 | 2.41 | 2.49 |  |
|                                                                                            | 200  | 1.02 | 1.11 | 1.21 | 1.30 | 1.39 | 1.49 | 1.58 | 1.67 | 1.76 | 1.86 | 1.95 | 2.04 | 2.14 | 2.23 | 2.32 | 2.41 | 2.51 | 2.60 | 2.69 | 2.79 | 2.88 |  |
|                                                                                            | 250  | 1.14 | 1.25 | 1.35 | 1.45 | 1.56 | 1.66 | 1.77 | 1.87 | 1.97 | 2.08 | 2.18 | 2.28 | 2.39 | 2.49 | 2.60 | 2.70 | 2.80 | 2.91 | 3.01 | 3.12 | 3.22 |  |
|                                                                                            | 300  | 1.25 | 1.37 | 1.48 | 1.59 | 1.71 | 1.82 | 1.93 | 2.05 | 2.16 | 2.28 | 2.39 | 2.50 | 2.62 | 2.73 | 2.84 | 2.96 | 3.07 | 3.19 | 3.30 | 3.41 | 3.53 |  |
|                                                                                            | 350  | 1.35 | 1.47 | 1.60 | 1.72 | 1.84 | 1.97 | 2.09 | 2.21 | 2.33 | 2.46 | 2.58 | 2.70 | 2.83 | 2.95 | 3.07 | 3.19 | 3.32 | 3.44 | 3.56 | 3.69 | 3.81 |  |
|                                                                                            | 400  | 1.44 | 1.58 | 1.71 | 1.84 | 1.97 | 2.10 | 2.23 | 2.36 | 2.50 | 2.63 | 2.76 | 2.89 | 3.02 | 3.15 | 3.28 | 3.42 | 3.55 | 3.68 | 3.81 | 3.94 | 4.07 |  |
|                                                                                            | 450  | 1.53 | 1.67 | 1.81 | 1.95 | 2.09 | 2.23 | 2.37 | 2.51 | 2.65 | 2.79 | 2.93 | 3.07 | 3.20 | 3.34 | 3.48 | 3.62 | 3.76 | 3.90 | 4.04 | 4.18 | 4.32 |  |
|                                                                                            | 500  | 1.62 | 1.76 | 1.91 | 2.06 | 2.20 | 2.35 | 2.50 | 2.64 | 2.79 | 2.94 | 3.08 | 3.23 | 3.38 | 3.52 | 3.67 | 3.82 | 3.97 | 4.11 | 4.26 | 4.41 | 4.55 |  |
|                                                                                            | 550  | 1.69 | 1.85 | 2.00 | 2.16 | 2.31 | 2.46 | 2.62 | 2.77 | 2.93 | 3.08 | 3.23 | 3.39 | 3.54 | 3.70 | 3.85 | 4.00 | 4.16 | 4.31 | 4.47 | 4.62 | 4.77 |  |
|                                                                                            | 600  | 1.77 | 1.93 | 2.09 | 2.25 | 2.41 | 2.57 | 2.73 | 2.90 | 3.06 | 3.22 | 3.38 | 3.54 | 3.70 | 3.86 | 4.02 | 4.18 | 4.34 | 4.50 | 4.67 | 4.83 | 4.99 |  |
|                                                                                            | 650  | 1.84 | 2.01 | 2.18 | 2.34 | 2.51 | 2.68 | 2.85 | 3.01 | 3.18 | 3.35 | 3.52 | 3.68 | 3.85 | 4.02 | 4.19 | 4.35 | 4.52 | 4.69 | 4.86 | 5.02 | 5.19 |  |
|                                                                                            | 700  | 1.91 | 2.09 | 2.26 | 2.43 | 2.61 | 2.78 | 2.95 | 3.13 | 3.30 | 3.48 | 3.65 | 3.82 | 4.00 | 4.17 | 4.34 | 4.52 | 4.69 | 4.87 | 5.04 | 5.21 | 5.39 |  |
|                                                                                            | 750  | 1.98 | 2.16 | 2.34 | 2.52 | 2.70 | 2.88 | 3.06 | 3.24 | 3.42 | 3.60 | 3.78 | 3.96 | 4.14 | 4.32 | 4.50 | 4.68 | 4.86 | 5.04 | 5.22 | 5.40 | 5.58 |  |
|                                                                                            | 800  | 2.04 | 2.23 | 2.41 | 2.60 | 2.79 | 2.97 | 3.16 | 3.34 | 3.53 | 3.72 | 3.90 | 4.09 | 4.27 | 4.46 | 4.64 | 4.83 | 5.02 | 5.20 | 5.39 | 5.57 | 5.76 |  |
|                                                                                            | 850  | 2.11 | 2.30 | 2.49 | 2.68 | 2.87 | 3.06 | 3.26 | 3.45 | 3.64 | 3.83 | 4.02 | 4.21 | 4.40 | 4.60 | 4.79 | 4.98 | 5.17 | 5.36 | 5.55 | 5.74 | 5.94 |  |
|                                                                                            | 900  | 2.17 | 2.36 | 2.56 | 2.76 | 2.96 | 3.15 | 3.35 | 3.55 | 3.74 | 3.94 | 4.14 | 4.33 | 4.53 | 4.73 | 4.93 | 5.12 | 5.32 | 5.52 | 5.71 | 5.91 | 6.11 |  |
|                                                                                            | 950  | 2.23 | 2.43 | 2.63 | 2.83 | 3.04 | 3.24 | 3.44 | 3.64 | 3.85 | 4.05 | 4.25 | 4.45 | 4.66 | 4.86 | 5.06 | 5.26 | 5.47 | 5.67 | 5.87 | 6.07 | 6.28 |  |
|                                                                                            | 1000 | 2.28 | 2.49 | 2.70 | 2.91 | 3.12 | 3.32 | 3.53 | 3.74 | 3.95 | 4.15 | 4.36 | 4.57 | 4.78 | 4.98 | 5.19 | 5.40 | 5.61 | 5.82 | 6.02 | 6.23 | 6.44 |  |
|                                                                                            | 1050 | 2.34 | 2.55 | 2.77 | 2.98 | 3.19 | 3.41 | 3.62 | 3.83 | 4.04 | 4.26 | 4.47 | 4.68 | 4.89 | 5.11 | 5.32 | 5.53 | 5.75 | 5.96 | 6.17 | 6.38 | 6.60 |  |
| 1100                                                                                       | 2.40 | 2.61 | 2.83 | 3.05 | 3.27 | 3.49 | 3.70 | 3.92 | 4.14 | 4.36 | 4.57 | 4.79 | 5.01 | 5.23 | 5.45 | 5.66 | 5.88 | 6.10 | 6.32 | 6.53 | 6.75 |      |  |
| 1150                                                                                       | 2.45 | 2.67 | 2.90 | 3.12 | 3.34 | 3.56 | 3.79 | 4.01 | 4.23 | 4.45 | 4.68 | 4.90 | 5.12 | 5.35 | 5.57 | 5.79 | 6.01 | 6.24 | 6.46 | 6.68 | 6.90 |      |  |
| 1200                                                                                       | 2.50 | 2.73 | 2.96 | 3.19 | 3.41 | 3.64 | 3.87 | 4.10 | 4.32 | 4.55 | 4.78 | 5.01 | 5.23 | 5.46 | 5.69 | 5.92 | 6.14 | 6.37 | 6.60 | 6.83 | 7.05 |      |  |

(2) Combined Weight of Car and Hoistway Doors and All Attached Equipment (lbs)

**NOTES:**

- (1) See Section 2.13.4.2.2 of ASME A17.1 Safety Code for Elevators for detail
- (2) See Section 2.13.4.2.1 of ASME A17.1 Safety Code for Elevators for detail

Kinetic Energy Formula

$$\frac{1}{2} \left( \frac{M}{32.2} \right) \left( V \right)^2 = 2.5 \text{ ft-lbf}$$

M = Combined Weight of Car and Hoistway Doors and All Attached Equipment  
V = Speed in Feet Per Second

**Table 3.2 Center Parting, Nudging Provided**

|                                                                                |      | MINIMUM CLOSING TIME FOR CENTER PARTING DOORS (sec) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |  |
|--------------------------------------------------------------------------------|------|-----------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|--|--|
| Door Opening Width (inch)                                                      |      | 26                                                  | 28   | 30   | 32   | 34   | 36   | 38   | 40   | 42   | 44   | 46   | 48   | 50   | 52   | 54   | 56   | 58   | 60   | 62   | 64   | 66   |  |  |  |
| (1) Code Zone Distance (inch)                                                  |      | 11                                                  | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   | 25   | 26   | 27   | 28   | 29   | 30   | 31   |  |  |  |
| (2) Combined Weight of Car and Hoistway Doors and All Attached Equipment (lbs) | 100  | 0.42                                                | 0.46 | 0.50 | 0.54 | 0.57 | 0.61 | 0.65 | 0.69 | 0.73 | 0.77 | 0.80 | 0.84 | 0.88 | 0.92 | 0.96 | 0.99 | 1.03 | 1.07 | 1.11 | 1.15 | 1.19 |  |  |  |
|                                                                                | 150  | 0.52                                                | 0.56 | 0.61 | 0.66 | 0.70 | 0.75 | 0.80 | 0.84 | 0.89 | 0.94 | 0.98 | 1.03 | 1.08 | 1.12 | 1.17 | 1.22 | 1.26 | 1.31 | 1.36 | 1.41 | 1.45 |  |  |  |
|                                                                                | 200  | 0.60                                                | 0.65 | 0.70 | 0.76 | 0.81 | 0.87 | 0.92 | 0.97 | 1.03 | 1.08 | 1.14 | 1.19 | 1.24 | 1.30 | 1.35 | 1.41 | 1.46 | 1.51 | 1.57 | 1.62 | 1.68 |  |  |  |
|                                                                                | 250  | 0.67                                                | 0.73 | 0.79 | 0.85 | 0.91 | 0.97 | 1.03 | 1.09 | 1.15 | 1.21 | 1.27 | 1.33 | 1.39 | 1.45 | 1.51 | 1.57 | 1.63 | 1.69 | 1.75 | 1.81 | 1.87 |  |  |  |
|                                                                                | 300  | 0.73                                                | 0.80 | 0.86 | 0.93 | 0.99 | 1.06 | 1.13 | 1.19 | 1.26 | 1.33 | 1.39 | 1.46 | 1.52 | 1.59 | 1.66 | 1.72 | 1.79 | 1.86 | 1.92 | 1.99 | 2.05 |  |  |  |
|                                                                                | 350  | 0.79                                                | 0.86 | 0.93 | 1.00 | 1.07 | 1.14 | 1.22 | 1.29 | 1.36 | 1.43 | 1.50 | 1.57 | 1.65 | 1.72 | 1.79 | 1.86 | 1.93 | 2.00 | 2.08 | 2.15 | 2.22 |  |  |  |
|                                                                                | 400  | 0.84                                                | 0.92 | 0.99 | 1.07 | 1.15 | 1.22 | 1.30 | 1.38 | 1.45 | 1.53 | 1.61 | 1.68 | 1.76 | 1.84 | 1.91 | 1.99 | 2.07 | 2.14 | 2.22 | 2.30 | 2.37 |  |  |  |
|                                                                                | 450  | 0.89                                                | 0.97 | 1.05 | 1.14 | 1.22 | 1.30 | 1.38 | 1.46 | 1.54 | 1.62 | 1.70 | 1.79 | 1.87 | 1.95 | 2.03 | 2.11 | 2.19 | 2.27 | 2.35 | 2.43 | 2.52 |  |  |  |
|                                                                                | 500  | 0.94                                                | 1.03 | 1.11 | 1.20 | 1.28 | 1.37 | 1.45 | 1.54 | 1.63 | 1.71 | 1.80 | 1.88 | 1.97 | 2.05 | 2.14 | 2.22 | 2.31 | 2.39 | 2.48 | 2.57 | 2.65 |  |  |  |
|                                                                                | 550  | 0.99                                                | 1.08 | 1.17 | 1.26 | 1.35 | 1.44 | 1.53 | 1.61 | 1.70 | 1.79 | 1.88 | 1.97 | 2.06 | 2.15 | 2.24 | 2.33 | 2.42 | 2.51 | 2.60 | 2.69 | 2.78 |  |  |  |
|                                                                                | 600  | 1.03                                                | 1.12 | 1.22 | 1.31 | 1.41 | 1.50 | 1.59 | 1.69 | 1.78 | 1.87 | 1.97 | 2.06 | 2.15 | 2.25 | 2.34 | 2.44 | 2.53 | 2.62 | 2.72 | 2.81 | 2.90 |  |  |  |
|                                                                                | 650  | 1.07                                                | 1.17 | 1.27 | 1.37 | 1.46 | 1.56 | 1.66 | 1.76 | 1.85 | 1.95 | 2.05 | 2.15 | 2.24 | 2.34 | 2.44 | 2.54 | 2.63 | 2.73 | 2.83 | 2.93 | 3.02 |  |  |  |
|                                                                                | 700  | 1.11                                                | 1.21 | 1.32 | 1.42 | 1.52 | 1.62 | 1.72 | 1.82 | 1.92 | 2.02 | 2.13 | 2.23 | 2.33 | 2.43 | 2.53 | 2.63 | 2.73 | 2.83 | 2.93 | 3.04 | 3.14 |  |  |  |
|                                                                                | 750  | 1.15                                                | 1.26 | 1.36 | 1.47 | 1.57 | 1.68 | 1.78 | 1.89 | 1.99 | 2.10 | 2.20 | 2.30 | 2.41 | 2.51 | 2.62 | 2.72 | 2.83 | 2.93 | 3.04 | 3.14 | 3.25 |  |  |  |
|                                                                                | 800  | 1.19                                                | 1.30 | 1.41 | 1.51 | 1.62 | 1.73 | 1.84 | 1.95 | 2.06 | 2.16 | 2.27 | 2.38 | 2.49 | 2.60 | 2.70 | 2.81 | 2.92 | 3.03 | 3.14 | 3.25 | 3.35 |  |  |  |
|                                                                                | 850  | 1.23                                                | 1.34 | 1.45 | 1.56 | 1.67 | 1.78 | 1.90 | 2.01 | 2.12 | 2.23 | 2.34 | 2.45 | 2.56 | 2.68 | 2.79 | 2.90 | 3.01 | 3.12 | 3.23 | 3.35 | 3.46 |  |  |  |
|                                                                                | 900  | 1.26                                                | 1.38 | 1.49 | 1.61 | 1.72 | 1.84 | 1.95 | 2.07 | 2.18 | 2.30 | 2.41 | 2.52 | 2.64 | 2.75 | 2.87 | 2.98 | 3.10 | 3.21 | 3.33 | 3.44 | 3.56 |  |  |  |
|                                                                                | 950  | 1.30                                                | 1.41 | 1.53 | 1.65 | 1.77 | 1.89 | 2.00 | 2.12 | 2.24 | 2.36 | 2.48 | 2.59 | 2.71 | 2.83 | 2.95 | 3.07 | 3.18 | 3.30 | 3.42 | 3.54 | 3.65 |  |  |  |
|                                                                                | 1000 | 1.33                                                | 1.45 | 1.57 | 1.69 | 1.81 | 1.94 | 2.06 | 2.18 | 2.30 | 2.42 | 2.54 | 2.66 | 2.78 | 2.90 | 3.02 | 3.14 | 3.27 | 3.39 | 3.51 | 3.63 | 3.75 |  |  |  |
|                                                                                | 1050 | 1.36                                                | 1.49 | 1.61 | 1.74 | 1.86 | 1.98 | 2.11 | 2.23 | 2.35 | 2.48 | 2.60 | 2.73 | 2.85 | 2.97 | 3.10 | 3.22 | 3.35 | 3.47 | 3.59 | 3.72 | 3.84 |  |  |  |
|                                                                                | 1100 | 1.40                                                | 1.52 | 1.65 | 1.78 | 1.90 | 2.03 | 2.16 | 2.28 | 2.41 | 2.54 | 2.66 | 2.79 | 2.92 | 3.04 | 3.17 | 3.30 | 3.43 | 3.56 | 3.68 | 3.81 | 3.93 |  |  |  |
|                                                                                | 1150 | 1.43                                                | 1.56 | 1.69 | 1.82 | 1.95 | 2.08 | 2.21 | 2.33 | 2.46 | 2.59 | 2.72 | 2.85 | 2.98 | 3.11 | 3.24 | 3.37 | 3.50 | 3.63 | 3.76 | 3.89 | 4.02 |  |  |  |
|                                                                                | 1200 | 1.46                                                | 1.59 | 1.72 | 1.86 | 1.99 | 2.12 | 2.25 | 2.39 | 2.52 | 2.65 | 2.78 | 2.92 | 3.05 | 3.18 | 3.31 | 3.45 | 3.58 | 3.71 | 3.84 | 3.98 | 4.11 |  |  |  |

NOTES:

(1) See Section 2.13.4.2.2 of ASME A17.1 Safety Code for Elevators for detail

(2) See Section 2.13.4.2.1 of ASME A17.1 Safety Code for Elevators for detail

Kinetic Energy Formula

$$\frac{1}{2} \left( \frac{M}{32.2} \right) \left( V \right)^2 = 7.37 \text{ ft-lbf}$$

M = Combined Weight of Car and Hoistway Doors and All Attached Equipment

V = Speed in Feet Per Second

## Maintenance Plan Information

**Table 3.3 Side Slide, No Nudging**

| MINIMUM CLOSING TIME FOR SIDE SLIDE DOORS WITHOUT RE-OPENING DEVICE (NUDGING) (sec) |                               | 26   | 28   | 30   | 32   | 34   | 36   | 38   | 40   | 42   | 44   | 46   | 48    | 50    | 52    | 54    | 56    | 58    | 60    | 62    | 64    | 66    |
|-------------------------------------------------------------------------------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Door Opening Width (inch)                                                           | (1) Code Zone Distance (inch) | 22   | 24   | 26   | 28   | 30   | 32   | 34   | 36   | 38   | 40   | 42   | 44    | 46    | 48    | 50    | 52    | 54    | 56    | 58    | 60    | 62    |
| (2) Combined Weight of Car and Hoistway Doors and All Attached Equipment (lbs)      | 100                           | 1.44 | 1.58 | 1.71 | 1.84 | 1.97 | 2.10 | 2.23 | 2.36 | 2.50 | 2.63 | 2.76 | 2.89  | 3.02  | 3.15  | 3.28  | 3.42  | 3.55  | 3.68  | 3.81  | 3.94  | 4.07  |
|                                                                                     | 150                           | 1.77 | 1.93 | 2.09 | 2.25 | 2.41 | 2.57 | 2.73 | 2.90 | 3.06 | 3.22 | 3.38 | 3.54  | 3.70  | 3.86  | 4.02  | 4.18  | 4.34  | 4.50  | 4.67  | 4.83  | 4.99  |
|                                                                                     | 200                           | 2.04 | 2.23 | 2.41 | 2.60 | 2.79 | 2.97 | 3.16 | 3.34 | 3.53 | 3.72 | 3.90 | 4.09  | 4.27  | 4.46  | 4.64  | 4.83  | 5.02  | 5.20  | 5.39  | 5.57  | 5.76  |
|                                                                                     | 250                           | 2.28 | 2.49 | 2.70 | 2.91 | 3.12 | 3.32 | 3.53 | 3.74 | 3.95 | 4.15 | 4.36 | 4.57  | 4.78  | 4.98  | 5.19  | 5.40  | 5.61  | 5.82  | 6.02  | 6.23  | 6.44  |
|                                                                                     | 300                           | 2.50 | 2.73 | 2.96 | 3.19 | 3.41 | 3.64 | 3.87 | 4.10 | 4.32 | 4.55 | 4.78 | 5.01  | 5.23  | 5.46  | 5.69  | 5.92  | 6.14  | 6.37  | 6.60  | 6.83  | 7.05  |
|                                                                                     | 350                           | 2.70 | 2.95 | 3.19 | 3.44 | 3.69 | 3.93 | 4.18 | 4.42 | 4.67 | 4.91 | 5.16 | 5.41  | 5.65  | 5.90  | 6.14  | 6.39  | 6.63  | 6.88  | 7.13  | 7.37  | 7.62  |
|                                                                                     | 400                           | 2.89 | 3.15 | 3.42 | 3.68 | 3.94 | 4.20 | 4.47 | 4.73 | 4.99 | 5.25 | 5.52 | 5.78  | 6.04  | 6.30  | 6.57  | 6.83  | 7.09  | 7.36  | 7.62  | 7.88  | 8.14  |
|                                                                                     | 450                           | 3.07 | 3.34 | 3.62 | 3.90 | 4.18 | 4.46 | 4.74 | 5.02 | 5.29 | 5.57 | 5.85 | 6.13  | 6.41  | 6.69  | 6.97  | 7.24  | 7.52  | 7.80  | 8.08  | 8.36  | 8.64  |
|                                                                                     | 500                           | 3.23 | 3.52 | 3.82 | 4.11 | 4.41 | 4.70 | 4.99 | 5.29 | 5.58 | 5.87 | 6.17 | 6.46  | 6.76  | 7.05  | 7.34  | 7.64  | 7.93  | 8.22  | 8.52  | 8.81  | 9.11  |
|                                                                                     | 550                           | 3.39 | 3.70 | 4.00 | 4.31 | 4.62 | 4.93 | 5.24 | 5.54 | 5.85 | 6.16 | 6.47 | 6.78  | 7.09  | 7.39  | 7.70  | 8.01  | 8.32  | 8.63  | 8.93  | 9.24  | 9.55  |
|                                                                                     | 600                           | 3.54 | 3.86 | 4.18 | 4.50 | 4.83 | 5.15 | 5.47 | 5.79 | 6.11 | 6.43 | 6.76 | 7.08  | 7.40  | 7.72  | 8.04  | 8.37  | 8.69  | 9.01  | 9.33  | 9.65  | 9.97  |
|                                                                                     | 650                           | 3.68 | 4.02 | 4.35 | 4.69 | 5.02 | 5.36 | 5.69 | 6.03 | 6.36 | 6.70 | 7.03 | 7.37  | 7.70  | 8.04  | 8.37  | 8.71  | 9.04  | 9.38  | 9.71  | 10.05 | 10.38 |
|                                                                                     | 700                           | 3.82 | 4.17 | 4.52 | 4.87 | 5.21 | 5.56 | 5.91 | 6.26 | 6.60 | 6.95 | 7.30 | 7.65  | 7.99  | 8.34  | 8.69  | 9.04  | 9.38  | 9.73  | 10.08 | 10.43 | 10.77 |
|                                                                                     | 750                           | 3.96 | 4.32 | 4.68 | 5.04 | 5.40 | 5.76 | 6.12 | 6.47 | 6.83 | 7.19 | 7.55 | 7.91  | 8.27  | 8.63  | 8.99  | 9.35  | 9.71  | 10.07 | 10.43 | 10.79 | 11.15 |
|                                                                                     | 800                           | 4.09 | 4.46 | 4.83 | 5.20 | 5.57 | 5.94 | 6.32 | 6.69 | 7.06 | 7.43 | 7.80 | 8.17  | 8.54  | 8.92  | 9.29  | 9.66  | 10.03 | 10.40 | 10.77 | 11.15 | 11.52 |
|                                                                                     | 850                           | 4.21 | 4.60 | 4.98 | 5.36 | 5.74 | 6.13 | 6.51 | 6.89 | 7.28 | 7.66 | 8.04 | 8.42  | 8.81  | 9.19  | 9.57  | 9.96  | 10.34 | 10.72 | 11.11 | 11.49 | 11.87 |
|                                                                                     | 900                           | 4.33 | 4.73 | 5.12 | 5.52 | 5.91 | 6.30 | 6.70 | 7.09 | 7.49 | 7.88 | 8.28 | 8.67  | 9.06  | 9.46  | 9.85  | 10.25 | 10.64 | 11.03 | 11.43 | 11.82 | 12.22 |
|                                                                                     | 950                           | 4.45 | 4.86 | 5.26 | 5.67 | 6.07 | 6.48 | 6.88 | 7.29 | 7.69 | 8.10 | 8.50 | 8.91  | 9.31  | 9.72  | 10.12 | 10.53 | 10.93 | 11.34 | 11.74 | 12.15 | 12.55 |
|                                                                                     | 1000                          | 4.57 | 4.98 | 5.40 | 5.82 | 6.23 | 6.65 | 7.06 | 7.48 | 7.89 | 8.31 | 8.72 | 9.14  | 9.55  | 9.97  | 10.38 | 10.80 | 11.22 | 11.63 | 12.05 | 12.46 | 12.88 |
|                                                                                     | 1050                          | 4.68 | 5.11 | 5.53 | 5.96 | 6.38 | 6.81 | 7.24 | 7.66 | 8.09 | 8.51 | 8.94 | 9.36  | 9.79  | 10.22 | 10.64 | 11.07 | 11.49 | 11.92 | 12.34 | 12.77 | 13.19 |
|                                                                                     | 1100                          | 4.79 | 5.23 | 5.66 | 6.10 | 6.53 | 6.97 | 7.41 | 7.84 | 8.28 | 8.71 | 9.15 | 9.58  | 10.02 | 10.46 | 10.89 | 11.33 | 11.76 | 12.20 | 12.63 | 13.07 | 13.50 |
|                                                                                     | 1150                          | 4.90 | 5.35 | 5.79 | 6.24 | 6.68 | 7.13 | 7.57 | 8.02 | 8.46 | 8.91 | 9.35 | 9.80  | 10.25 | 10.69 | 11.14 | 11.58 | 12.03 | 12.47 | 12.92 | 13.36 | 13.81 |
|                                                                                     | 1200                          | 5.01 | 5.46 | 5.92 | 6.37 | 6.83 | 7.28 | 7.74 | 8.19 | 8.65 | 9.10 | 9.56 | 10.01 | 10.47 | 10.92 | 11.38 | 11.83 | 12.29 | 12.74 | 13.20 | 13.65 | 14.11 |

**NOTES:**

- (1) See Section 2.13.4.2.2 of ASME A17.1 Safety Code for Elevators for detail  
 (2) See Section 2.13.4.2.1 of ASME A17.1 Safety Code for Elevators for detail

Kinetic Energy Formula

$$\frac{1}{2} \left( \frac{M}{32.2} \right) \left( V \right)^2 = 2.5 \text{ ft-lbf}$$

M = Combined Weight of Car and Hoistway Doors and All Attached Equipment  
 V = Speed in Feet Per Second

**Table 3.4 Side Slide, Nudging Provided**

| MINIMUM CLOSING TIME FOR SIDE SLIDE DOORS (sec)                                |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |  |
|--------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|--|--|
| Door Opening Width (inch)                                                      | 26   | 28   | 30   | 32   | 34   | 36   | 38   | 40   | 42   | 44   | 46   | 48   | 50   | 52   | 54   | 56   | 58   | 60   | 62   | 64   | 66   |  |  |  |
| (1) Code Zone Distance (inch)                                                  | 22   | 24   | 26   | 28   | 30   | 32   | 34   | 36   | 38   | 40   | 42   | 44   | 46   | 48   | 50   | 52   | 54   | 56   | 58   | 60   | 62   |  |  |  |
| (2) Combined Weight of Car and Hoistway Doors and All Attached Equipment (lbs) | 100  | 0.84 | 0.92 | 0.99 | 1.07 | 1.15 | 1.22 | 1.30 | 1.38 | 1.45 | 1.53 | 1.61 | 1.68 | 1.76 | 1.84 | 1.91 | 1.99 | 2.07 | 2.14 | 2.22 | 2.30 |  |  |  |
|                                                                                | 150  | 1.03 | 1.12 | 1.22 | 1.31 | 1.41 | 1.50 | 1.59 | 1.69 | 1.78 | 1.87 | 1.97 | 2.06 | 2.15 | 2.25 | 2.34 | 2.44 | 2.53 | 2.62 | 2.72 | 2.81 |  |  |  |
|                                                                                | 200  | 1.19 | 1.30 | 1.41 | 1.51 | 1.62 | 1.73 | 1.84 | 1.95 | 2.06 | 2.16 | 2.27 | 2.38 | 2.49 | 2.60 | 2.70 | 2.81 | 2.92 | 3.03 | 3.14 |      |  |  |  |
|                                                                                | 250  | 1.33 | 1.45 | 1.57 | 1.69 | 1.81 | 1.94 | 2.06 | 2.18 | 2.30 | 2.42 | 2.54 | 2.66 | 2.78 | 2.90 | 3.02 | 3.14 | 3.27 | 3.39 | 3.51 |      |  |  |  |
|                                                                                | 300  | 1.46 | 1.59 | 1.72 | 1.86 | 1.99 | 2.12 | 2.25 | 2.39 | 2.52 | 2.65 | 2.78 | 2.92 | 3.05 | 3.18 | 3.31 | 3.45 | 3.58 | 3.71 |      |      |  |  |  |
|                                                                                | 350  | 1.57 | 1.72 | 1.86 | 2.00 | 2.15 | 2.29 | 2.43 | 2.58 | 2.72 | 2.86 | 3.01 | 3.15 | 3.29 | 3.43 | 3.58 | 3.72 | 3.86 | 4.01 |      |      |  |  |  |
|                                                                                | 400  | 1.68 | 1.84 | 1.99 | 2.14 | 2.30 | 2.45 | 2.60 | 2.75 | 2.91 | 3.06 | 3.21 | 3.37 | 3.52 | 3.67 | 3.83 | 3.98 | 4.13 | 4.28 |      |      |  |  |  |
|                                                                                | 450  | 1.79 | 1.95 | 2.11 | 2.27 | 2.43 | 2.60 | 2.76 | 2.92 | 3.08 | 3.25 | 3.41 | 3.57 | 3.73 | 3.89 | 4.06 | 4.22 | 4.38 | 4.54 |      |      |  |  |  |
|                                                                                | 500  | 1.88 | 2.05 | 2.22 | 2.39 | 2.57 | 2.74 | 2.91 | 3.08 | 3.25 | 3.42 | 3.59 | 3.76 | 3.93 | 4.11 | 4.28 | 4.45 | 4.62 | 4.79 |      |      |  |  |  |
|                                                                                | 550  | 1.97 | 2.15 | 2.33 | 2.51 | 2.69 | 2.87 | 3.05 | 3.23 | 3.41 | 3.59 | 3.77 | 3.95 | 4.13 | 4.31 | 4.49 | 4.66 | 4.84 | 5.02 |      |      |  |  |  |
| 600                                                                            | 2.06 | 2.25 | 2.44 | 2.62 | 2.81 | 3.00 | 3.19 | 3.37 | 3.56 | 3.75 | 3.94 | 4.12 | 4.31 | 4.50 | 4.68 | 4.87 | 5.06 | 5.25 |      |      |      |  |  |  |
| 650                                                                            | 2.15 | 2.34 | 2.54 | 2.73 | 2.93 | 3.12 | 3.32 | 3.51 | 3.71 | 3.90 | 4.10 | 4.29 | 4.49 | 4.68 | 4.88 | 5.07 | 5.27 | 5.46 |      |      |      |  |  |  |
| 700                                                                            | 2.23 | 2.43 | 2.63 | 2.83 | 3.04 | 3.24 | 3.44 | 3.64 | 3.85 | 4.05 | 4.25 | 4.45 | 4.66 | 4.86 | 5.06 | 5.26 | 5.46 | 5.67 |      |      |      |  |  |  |
| 750                                                                            | 2.30 | 2.51 | 2.72 | 2.93 | 3.14 | 3.35 | 3.56 | 3.77 | 3.98 | 4.19 | 4.40 | 4.61 | 4.82 | 5.03 | 5.24 | 5.45 | 5.66 | 5.87 |      |      |      |  |  |  |
| 800                                                                            | 2.38 | 2.60 | 2.81 | 3.03 | 3.25 | 3.46 | 3.68 | 3.89 | 4.11 | 4.33 | 4.54 | 4.76 | 4.98 | 5.19 | 5.41 | 5.63 | 5.84 | 6.06 |      |      |      |  |  |  |
| 850                                                                            | 2.45 | 2.68 | 2.90 | 3.12 | 3.35 | 3.57 | 3.79 | 4.01 | 4.24 | 4.46 | 4.68 | 4.91 | 5.13 | 5.35 | 5.58 | 5.80 | 6.02 | 6.25 |      |      |      |  |  |  |
| 900                                                                            | 2.52 | 2.75 | 2.98 | 3.21 | 3.44 | 3.67 | 3.90 | 4.13 | 4.36 | 4.59 | 4.82 | 5.05 | 5.28 | 5.51 | 5.74 | 5.97 | 6.20 | 6.43 |      |      |      |  |  |  |
| 950                                                                            | 2.59 | 2.83 | 3.07 | 3.30 | 3.54 | 3.77 | 4.01 | 4.24 | 4.48 | 4.72 | 4.95 | 5.19 | 5.42 | 5.66 | 5.89 | 6.13 | 6.37 | 6.60 |      |      |      |  |  |  |
| 1000                                                                           | 2.66 | 2.90 | 3.14 | 3.39 | 3.63 | 3.87 | 4.11 | 4.35 | 4.60 | 4.84 | 5.08 | 5.32 | 5.56 | 5.81 | 6.05 | 6.29 | 6.53 | 6.77 |      |      |      |  |  |  |
| 1050                                                                           | 2.73 | 2.97 | 3.22 | 3.47 | 3.72 | 3.97 | 4.21 | 4.46 | 4.71 | 4.96 | 5.21 | 5.45 | 5.70 | 5.95 | 6.20 | 6.45 | 6.69 | 6.94 |      |      |      |  |  |  |
| 1100                                                                           | 2.79 | 3.04 | 3.30 | 3.55 | 3.81 | 4.06 | 4.31 | 4.57 | 4.82 | 5.07 | 5.33 | 5.58 | 5.84 | 6.09 | 6.34 | 6.60 | 6.85 | 7.10 |      |      |      |  |  |  |
| 1150                                                                           | 2.85 | 3.11 | 3.37 | 3.63 | 3.89 | 4.15 | 4.41 | 4.67 | 4.93 | 5.19 | 5.45 | 5.71 | 5.97 | 6.23 | 6.49 | 6.75 | 7.00 | 7.26 |      |      |      |  |  |  |
| 1200                                                                           | 2.92 | 3.18 | 3.45 | 3.71 | 3.98 | 4.24 | 4.51 | 4.77 | 5.04 | 5.30 | 5.57 | 5.83 | 6.10 | 6.36 | 6.63 | 6.89 | 7.16 | 7.42 |      |      |      |  |  |  |

NOTES:  
 (1) See Section 2.13.4.2.2 of ASME A17.1 Safety Code for Elevators for detail  
 (2) See Section 2.13.4.2.1 of ASME A17.1 Safety Code for Elevators for detail

Kinetic Energy Formula

$$\frac{1}{2} \left( \frac{M}{32.2} \right) \left( V \right)^2 = 7.37 \text{ ft-lbf}$$

M = Combined Weight of Car and Hoistway Doors and All Attached Equipment  
 V = Speed in Feet Per Second

## Hydraulic Auxiliary Power Supply

### 8.6.4.19.7, 8.6.4.20.5 Maintenance and Testing

#### Battery Maintenance

1. Check the batteries every 4 to 6 months. If a battery is not in good condition, have a qualified technician replace the batteries as soon as possible.
2. The batteries should be charged and discharged every 4 to 6 months during normal use. Before charging, discharge the batteries to under-voltage. (Discharge can be accomplished using Test Mode as needed. The charging time must be at least 24 hours.
3. If a battery needs to be replaced, replace all of the batteries in the unit according to the instructions on [page 3-11](#).



#### **Danger**

Working with batteries exposes you to possible electrical shock and burns. Take proper precaution whenever handling batteries. When replacing batteries, use the same type (MCE part number 30-05-0026). Proper Disposal of batteries is required. Refer to your local codes for disposal instructions.

#### Battery Voltage No Load Test

1. Set switch SW1 to the OFF (middle) position.
2. Open the main disconnect.
3. Measure the DC voltage between terminals J4 (+) and J6 (-) on the HAPS main board using a DC multimeter.
4. Measured voltage should be 26VDC or greater for fully charged batteries. If batteries are not fully charged, this voltage will be less than 26VDC.

#### Battery Voltage Load Test

1. Make sure batteries are fully charged (indicator FLC is ON).
2. Connect multimeter across terminals J4 (+) and J6 (-) on HAPS main board.
3. Move the elevator to the top landing.
4. Hold switch SW1 in the TEST (bottom) position. HAPS will start backup operation.
5. Check the battery voltage reading on the multimeter while the elevator is running in backup operation.
6. If battery voltage is dropping quickly and goes below 19.5VDC, the batteries need to be replaced.

#### Battery Charger Circuit Test

If batteries are not fully charged after HAPS has been in normal operation for longer than 12 hours, verify the battery charging circuit is functioning properly.

1. Set switch SW1 to the OFF (middle) position.
2. Open the main disconnect.
3. Ensure that all battery wires are properly connected.
4. Check fuse F4 on the HAPS main board.



5. Measure DC voltage between terminals J4 (+) and J6 (-) using a DC multimeter. Record the measured voltage.
6. Turn ON power by closing the main disconnect.
7. Make sure the CHG indicator is blinking.
8. Measure DC voltage between terminals J4 (+) and J6 (-) using a DC multimeter. The value should be larger than the previously recorded voltage.
9. If the battery charging circuit is operating correctly, replace the batteries. See Battery Replacement Procedure below.

### **Battery Replacement**

1. On the HAPS main board, set switch SW1 in the OFF (center) position.
2. Open the main disconnect.
3. Remove the white wire from negative ( - ) terminal(s) J6 (and J7). Insulate the wire end to prevent contact/shorting to other components.
4. Unscrew the 2 screws to the right of the HAPS main control board and swing open the cover to expose the batteries. Note that no wires need to be disconnected in order to access the batteries under the HAPS main control board.
5. Carefully disconnect the old batteries from the slip connectors. Remove the batteries taking care to protect the poles from shorting.
6. Replace the batteries ensuring that cables are connected to the correct poles.
7. Close the cover and re-install the screws.
8. Reconnect white wire(s) to negative ( - ) terminal(s) J6 (and J7).



#### **Caution**

When connecting, a spark will occur. This is normal.

---

9. Restore commercial power.
10. Return HAPS switch SW1 to the ON (top) position. The HAPS unit is now able to enter battery back-up operation if commercial power is lost.



---

## Maintenance Plan Information



# Index

## Symbols

+24V 2-40, 2-44  
+24VINT 2-41

## Numerics

1 Bus 2-40  
2 BUS 2-19  
2 Bus 2-43, 2-45  
2 Bus is Low 2-48  
2 STOP FLG 2-19  
2 Stop Operation 2-19  
2010 ADA 1-5  
24CTP 2-45  
24FS 2-45  
24HWY 2-45  
24V Power Monitor 2-41  
24VDC 2-41, 2-45, 2-46  
2LS 2-43, 2-45  
2LS BUS 2-19  
2MV 2-43, 2-46  
2MV BUS 2-19  
3/6 or 9/12 Lead Motors 2-47

## A

A-/SPD1 2-40  
A+/SPD0 2-40  
ABD 2-19, 2-40  
Absolute Floor Encoding 1-38  
ABU 2-19, 2-40  
Access Enable 2-40  
Active Events 1-14  
Active Faults 2-14, 2-28  
ADA 2-19  
ADA Car Timer 2-8  
ADA Hall Timer 2-8  
Address Diagnostics 2-15  
Adjust 1-35  
AGND 2-44  
Air Conditioned Cabinets 3-2  
ALIVE 2-16  
Alive Input Low 2-48  
Alternate Fire Recall Floor 2-5  
Altitude 1-5  
Analog Ground 2-44

Anti-Nuisance 1-6

APS 2-19

DONE 2-18  
FAIL 2-16  
ON 2-16  
REVD 2-16

Architecture 1-17

ARROW DN 2-18

ARROW UP 2-18

ATD 2-20, 2-40

ATU 2-20, 2-40

Automatic Fault Bypass 1-6, 2-13

Automatic Modes 1-8

Aux CPI I/Os 2-13

Aux Power

Complete 2-48  
Fail 2-49  
Fire I 2-49  
Fire II 2-49  
Recall 2-49

## B

B- 2-40

B+ 2-40

Backup Current Settings 2-13

Batteries 3-2

Battery 2-36, 3-4

Battery Backed RAM 2-49

Baud Switch 1-43

BBRAM Read Error 2-49

BBRAM Write Error 2-49

Blue Event Text = Informational 2-14

Bootload Switches On 2-49

Bottom Access Distance 2-10

Bottom Access, DOWN 2-40

Bottom Access, UP 2-40

Bottom Deviation (Edge) 2-49

Bottom Floor 2-5

Bottom Terminal Test 1-54

BR 2-43

Brake

Contact Monitor 2-41  
Contactor 2-41  
Contactor Power 2-43  
Enable DC 2-41

- Fault 2-41
- Pick Control 2-41

**BREDC** 2-41

**BRFLT** 2-41

**BRP** 2-41

**BRPK** 2-41

**Building Security** 1-13, 2-11

**Building Setup** 2-5

**BUS** 1-12

**Bus Voltage Testpoints** 2-27

**Bypass EP Sequencing** 2-11

**Bypass Faults** 2-37

**Bypass PHE** 2-6

**Bypass SE** 2-6

**Bypass Stuck DOB** 2-6

## C

**Call Registration** 2-13

**CAN** 2-40, 2-41

- Bus 1-40, 1-43

- Bus Data 2-15

- Bus Termination 1-48

- Bus Viewer 1-15, 2-15

- Termination 1-46

**Capture Door** 2-6

**Capture Floor** 2-6

**Capture Mode** 2-50

**Car**

- DELAY 2-18

- Delayed Door Closed 2-50

- Delayed Door Open 2-50

- Delayed Time 2-9

- Delayed Timer 2-9

- Door Bypass 2-36

- GONG 2-18

- Hold 2-50

- ID 2-5

- Label 2-5

- LANTDN 2-18

- LANTUP 2-18

- Panel Inspection 2-5

- Panel Inspection Inputs 2-5

- Stop SW Bypassed 2-50

- Stop SW On 2-50

- Stop SW on Re-Level 2-50

- to Group Data 2-14

**Car 2 Floor 'nn' Opening** 2-15

**Car 2 Floor Heights** 2-15

**Car and Hall Call Registration** 2-13

**Car Call** 1-12

- Buttons 2-33

- Canceled Due To 2-14, 2-29

- Disabled 2-50

- Timer 2-8

**Car Controller**

- Installation of 1-21

**Car Motion Animation** 1-13

**Car/Hoistway Door Bypass Switches** 2-55

**Cars to Run on EP** 2-11

**Cartop**

**Box Power Control** 2-41

**Construct/Bypass** 2-50

**Construction** 2-50

**Insp/Bypass** 2-51

**Inspection** 2-40, 2-41, 2-51

**Inspection DOWN** 2-41

**Inspection UP** 2-41

**CC Enable Active Off** 2-11

**CC ENBL1-6** 2-16

**CC REG** 2-18

**CC SECURED** 2-18

**CC24V** 1-45, 2-33

**CCB Cancels LOT** 2-7

**CCB Shortens CCT** 2-7

**CCB Shortens HCT** 2-7

**CCC Behind Car** 2-6

**CCC Reversal** 2-6

**CCF** 2-20

**CCT** 2-20

**CDATA** 2-40

**CDB** 2-20

**CDB Switch Fault** 2-51

**CDBO** 2-20

**CDBOB** 2-20

**CE** 1-47

**CE Fixture Self-Test** 2-38

**CE MODE** 2-37

**Cell Battery Volts Low** 2-51

**Certified Ground** 2-27

**CFG Err**

- 2-Stop Config 2-51

- Car Panel Insp 2-51

- Controller Type 2-51

- Hoist Access 2-51

- Invalid Floor 2-52

- Landing System 2-52

**CGED** 2-20

**CGEU** 2-20

**Close Limit Time** 2-8

**COM** 1-12

**Commercial Power Loss** 2-52

**Compliance Test Active** 2-52

**CONFIG** 2-41

**Config 03** 1-13

**Construction**

- & Faults Bypass 1-14

- Fault Bypass 1-6

- Mode 1-8

- Operation 1-8

**Construction & Faults Bypass** 2-13

**Construction Fault Bypass** 2-13

**Construction Invalid** 2-52

**Contract Speed** 2-10

**Controller Maintenance** 3-2

**Controller Type** 2-5

**Controller will not Answer Hall Calls** 1-58

**Copying Files to USB** 2-52

**COS** 2-20

**COS Timer** 2-9

**Countdown Timer** 2-13

- CP 2-20
- CP Close Bypass PHE 2-7
- CP Ins Stuck Input 2-52
- CP Ins Stuck Input Flt 2-52
- CPI Addresses 1-47
- CPI Board Address 2-34
- CPI-2 Board CAN Baud Rate 2-34
- CPI-2 DIP Switch 2-34
- CPI-2 Jumpers 2-34
- CPU 1-12
  - Bus Communication 2-15
  - BUS, COM Status 2-29
  - DIP Switches 2-38
  - DIP Switches, 2-position, SW5 2-38
  - DIP Switches, 8-position, S2 2-38
- CT 2-20
- CT Ins Stuck Input 2-52
- CT Ins Stuck Input Flt 2-52
- CTEN 2-20, 2-40
- CTPR 2-20, 2-41, 2-45
- CTST 2-20
- Current Position 2-15
- Cycle Doors 2-11
- Cycle Test - "nnn" 2-53
- Cycle Test M2L 2-53
- Cycle Test MSAF High 2-53
- CYCTST 2-20

## D

- D HOLD ON 2-18
- Date and Time 1-13, 2-13
- DCB 2-16, 2-20
  - Cancels HCT 2-6
  - Short CCTR 2-6
  - Short HCTNCE 2-7
  - Shortens LOT 2-6
- DCF 2-18, 2-20, 2-44
- DCL 2-16, 2-20
- DCOM 2-41, 2-44
- Dead Zone Distance 2-10
- Default Gateway 2-12
- DETS 2-20, 2-43
- DFE/EB1 2-43
  - Stuck Off 2-53
  - Stuck On 2-53
- DFLT 2-20, 2-41
- DFLT is On 2-53
- DGND 2-44
- DHOLD END 2-18
- Diagnostics Tree 1-14, 2-14
- Dir Pref DLK 2-6
- Disp ID nn 1-13
- Dispatch Load 2-53
- Dispatcher 1-13, 2-11
- Dispatcher Comm Loss 2-53
- DL01 2-45
- DL02 2-45
- DLAB 2-20, 2-44
- DLAB Open-Running 2-54
- DLAT 2-20, 2-44
- DLAT Open-Running 2-54
- DLK 2-20
- DLM 2-16, 2-20
- DLMS 2-21, 2-44
- DLMS Open-Running 2-54
- DLS1 is Low 2-57
- DN Valve Unable to Open 2-54
- DOB 2-16, 2-21
  - Bypass 2-54
  - Bypass Timer 2-9
  - Fail 2-54
- DOF 2-18, 2-21, 2-44
- DOL 2-16, 2-21
  - DPM Fault 2-55
- DOL Low
  - DCL Low 2-54
  - DLAB High 2-55
  - DLAT High 2-55
  - DLMS High 2-55
  - DPM High 2-55
  - GS High 2-55
- Door
  - Bypass 2-36
  - Bypass Construct 2-55
  - Bypass Inspection 2-55
  - Bypass Switches 1-20
  - Close 2-14
  - Close Protection 1-51
  - Contact FLT Enabled 2-7
  - Control 1-14, 2-14, 2-28
  - Dwell Times 1-14, 2-29
  - Fault Shutdown 2-56
  - Hold 2-16, 2-56
  - Hold Timer 2-9
  - Interlock Timer 2-8
  - Lock Bottom String 2-44
  - Lock Middle String Input 2-44
  - Lock Top String Input 2-44
  - Open 2-14
  - Open Protection 1-51
  - Operator 1-48, 2-45
  - Operator Compatibility 2-44
  - Position Monitor Switch 1-48
  - Zone, Input 2-40
- Door Close
  - Due To 2-29
  - Fail 'n' 2-56
  - Fault 2-56
  - Function 2-44
- Door Closing Force 3-5
- Door Open
  - Due To 2-29
  - Fail 'n' 2-56
  - Fault 2-56
  - Function 2-44
- Doors Closed Not Locked 2-56
- Double Ding Down 2-6
- Down Emergency Terminal Switch Input 2-43
- Down Fast Enable Output 2-43
- Down Slow Enable Output 2-43

- Down Slow Limit 1 Input 2-43
- Down Slow Limit 2 Input 2-43
- Down Terminal Limit Input 2-43
- Down Terminal Limit Switch 2-58
- DPM 1-48, 2-16, 2-21
- DPM Low - DLK High 2-57
- DPM Open-Running 2-57
- DPS- 2-41
- DPS+ 2-41
- DRDO 2-41
- DRDY 2-21, 2-41
- DRDY is Off 2-57
- DRE 2-21, 2-41
- DRO 2-21
- DSE/EB2 2-43
- DSE/EB2 Stuck Off 2-57
- DSE/EB2 Stuck On 2-57
- DSL 2-21
- DSL1 2-43
- DSL1 Position Low 2-57
- DSL1/DSL2 Mismatch 2-57
- DSL2 2-10, 2-43
- DSL2 Position Low 2-57
- DTL 2-21, 2-43
- DTL and USLx Are Low 2-58
- DTL is Low 2-58
- Duplex 1-5
- Duplex Operation 1-53
- Duplicate Car ID 2-58
- Duplicate Dispatcher 2-58
- DZ 2-21, 2-40
- DZF Output Fault (Edge) 2-58

## E

### Earthquake

- Operation 1-6, 1-13, 2-58
- Recall 2-58
- Reset 2-36
- Run 2-58
- Sensor Input 2-40
- Shutdown 2-59

### EB Cycle Test Fault 2-59

EB1 2-43

EB12 2-43

EB2 2-43

EB3 2-43

EB4 2-43

EF GONG 2-18

Egress Floor 2-5

Electrical 1-5

Electrostatic Discharge 1-39

Elevator Features 2-6, 2-7

EMDISP 2-16

EMDISPOV 2-16

Emerg Pwr & Earthquake 1-14

Emergency Dispatch 2-59

Emergency Operation 1-6

Emergency Power 1-13, 2-11

Emergency Power Type 2-11

Emergency Power Type 2 2-15

Emergency Pwr & EQ 2-14

Emergency Stop 2-58

Emissions 1-5

E-Motive 1-47

EMS Floor 2-5

EMS In Car 2-59

EMS Recall 2-59

EMSC BUZZR 2-18

EMSC LIGHT 2-18

EMSC SW 2-16

EMSH LIGHT 2-18

EMSH SW 2-16

EN12016 1-5

Enable DOB on Security 2-11

Enclosure Installation 1-21

EP

- AUTO 2-16

- CARDONE 2-18

- Comm/Config Shutdown 2-59

- Door Operation 2-11

- LIGHT 2-18

- LOBBY 2-18

- MANUAL 2-16

- OFF 2-16

- ON 2-18

- Run 2-60

- SELECT 2-18

- Shutdown 2-60

EP Recall 2-59

- Complete 2-59

- Fail 2-59

- Floor 2-11

- ISV 2-60

- Next Floor 2-60

- Timeout 2-11

EP1 2-18

EP1 RECAL 2-18

EP2 ON 2-18

EP2 RUN 2-18

EPI 2-16

EPI-C 2-16

EQ 2-21

- BUZZER 2-18

- CWT 2-60

- Emergency Stop 2-60

- LIGHT 2-18

- SS 2-16, 2-60

EQ RST 1-20

EQR 2-21

ESC 2-21, 2-43, 2-60

ESC Input Low 2-60

ESCTO.B 2-21

ESD 1-39

ETH 2-21

Ethernet 2-41

Ethernet Error 2-60

ETS Switches 2-10

Event

- Filter 2-82

- Text Color 2-14



- Troubleshooting 2-48
- Event Log** 1-14, 2-14, 2-26, 2-28
  - Cleared 2-60
  - Colors 2-14
  - Write Fail 2-61
- Events**
  - Blue 2-82
  - Filtering 2-82
  - Gray 2-82
  - Red 2-82
  - Yellow 2-82
- Excessive Faults** 2-61, 2-82
- Exit Button** 2-2
- Export Current Settings to USB Drive** 1-59
- Export Events** 2-13, 2-26
- Export Parameters** 2-13

## F

- F2** 2-27, 2-46
- F24CTP** 2-27, 2-46
- F24FS** 2-46
- F24HWY** 2-27, 2-46
- F24VDC** 2-27, 2-46
- F2MV** 2-27, 2-46
- Factory Defaults** 2-13
- FAN** 2-45
- FAN LIGHT** 2-18
- Fan/Light Power Control** 2-41
- FAULT** 1-12, 1-20
- Fault Bypass JP** 2-63
- Fault Bypass Jumper** 2-13
- Fault Bypass Mode** 2-63
- Fault Reset** 2-36
- FB** 2-21
- FDL01** 2-46
- FDL02** 2-46
- FDLN1** 2-27
- FDLN2** 2-27
- FFLO** 2-46
- FGOV** 2-27, 2-46
- File Transfer Menu** 2-13
- File Transfer.** 1-59
- Final Testing, LS-EDGE Only** 1-54
- Fire Bypassed** 2-61
- Fire Code** 2-5
- Fire II** 2-61
- Fire II Hold** 2-61
- Fire II Recall** 2-61
- Fire Recall** 2-62
  - Alt 2-62
  - Done 2-62
  - FR1 On 2-62
  - FR1 On2 2-62
  - FRA 2-62
  - FRS 2-62
  - FRSA 2-62
  - FRSM 2-62
- Fire Service Phase II** 1-8
- Firmware Update** 2-62
- FL1** 2-27

- Flags** 1-14, 1-15
- Flash Fire Hat (MR/HSTWY)** 2-5
- FLI** 2-45
- FLN** 2-45
- FLO** 2-21, 2-45
- FLO Timer** 2-9
- Flood Floor** 2-5
- Flood Operation** 2-62
- Flood Recall** 2-63
- Floor**
  - Code Invalid 2-63
  - Encoding Input 2-17
  - Height 2-10
  - Label, Per Floor 2-5
  - Offset 2-10
  - Openings 2-5
  - Step Down 2-10
  - Step Up 2-10
- FLPC** 2-41, 2-45
- FLPWR** 2-21
- FLR GONG** 2-18
- FLT Bypass JP, Time Out** 2-63
- FLT Bypass Jumper** 2-37
- FR** 2-21
- FR HAT** 2-18, 2-21
- FR ISV** 2-18
- FR RECALL** 2-18
- FR1**
  - BUZR 2-18
  - BUZZER 2-21
  - DONE 2-18
  - LIGHT 2-19, 2-21
  - OFF 2-16, 2-21
  - ON 2-16, 2-21
  - ON2 2-16
  - RESET 2-16, 2-22
- FR2**
  - CANCEL 2-16
  - HOLD 2-16
  - OFF 2-16, 2-21
  - ON 2-16, 2-21
  - STATUS 2-19
- FRA** 2-22, 2-40, 2-62
- FRM** 2-62
- FRS** 2-22, 2-40
- FRSA** 2-22, 2-40
- FRSA OTHER** 2-16
- FRSM** 2-40
- FRSM OTHER** 2-16
- FSO** 2-19
- Fuse Types** 2-27
- FXL1** 2-27, 2-46
- FXL2** 2-27, 2-46

## G

- GAL MOD** 1-2
- GAL MONXT** 1-2
- GAL MOVFR** 1-2
- Gate Switch Input** 2-44
- GOS1** 2-46

**GOS2** 2-46  
**GOV** 2-22, 2-43, 2-46  
**Governor Overspeed** 2-46  
**GP** 2-22  
**GPI** 2-44  
**GPO** 2-44  
**Ground** 2-27  
**Grounding** 1-21  
**Group to Car Data** 2-14  
**GS** 2-22, 2-44  
**GS Open-Running** 2-63

## **H**

**Hall Bus Inventory** 2-15, 2-29  
**Hall Bus Test** 2-15  
**Hall Call**  
    Canceled Due To 2-14, 2-29  
    Inventory 2-29  
    Loss 1-6  
    Node Wiring 1-42  
    Test 2-29  
    Timer 2-8  
**Hall Calls** 1-12, 1-39, 1-42  
    Bypassed 2-63  
    Disabled 2-63  
**HAPS** 1-3, 1-6, 1-52, 2-22, 2-46  
**HAPS Maintenance & Test** 3-10  
**HC** 2-22  
**HC CANCEL** 2-17  
**HCF** 2-22  
**HCT** 2-22  
**HDATA** 2-40  
**HDB** 2-22  
**HDB Switch Fault** 2-63  
**HDBO** 2-22  
**HDBOB** 2-22  
**Heavy Load** 2-63  
**HLI, Heavy Load Input** 1-48  
**Hoist Access Construct** 2-64  
**Hoist Access Inspection** 2-64  
**Hoistway**  
    Access 2-5  
    Door Bypass 2-36  
    Door Bypass Switches 2-64  
    Learn 1-34, 2-13  
    Setup 2-10  
**Home Screen** 1-11, 2-2  
**Hourly Statistics** 1-16, 2-15, 2-29  
**Humidity** 1-5  
**Hydraulic Auxiliary Power Supply** 3-10  
**Hydraulic Auxiliary Power Supply (HAPS)** 1-52

## **I**

**I/O Terminal Mapping Flt** 2-65  
**ICE-COP-2** 1-18  
**ICEN** 2-22  
**ICEN/IN1** 2-5, 2-40  
**ICPD** 2-22  
**ICPD/IN3** 2-5, 2-40

**ICPU** 2-22  
**ICPU/IN2** 2-5, 2-40  
**ICTD** 2-22, 2-41  
**ICTU** 2-22, 2-41  
**Idle Door Open** 2-7  
**Import Parameters** 2-13  
**IN1H** 2-22, 2-40  
**IN2H** 2-22, 2-40  
**INA** 2-22, 2-40  
**In-Car Construct/Bypass** 2-64  
**In-Car Construction** 2-64  
**In-Car Insp/Bypass** 2-64  
**In-Car Inspection** 2-40, 2-64  
**INCP** 2-22, 2-40  
**INCT** 2-22, 2-41  
**IND** 2-22  
**Ind Overrides Security** 2-11  
**IND SERV** 2-17  
**Independent Mode** 2-64  
**Independent Service** 1-8  
**Initial Stepping Positions** 1-31, 1-35  
**Input Mismatch Faults** 2-48  
**Input/Output Assignment** 2-3, 2-8  
**Inputs** 2-8  
**INSP/NORM Mode** 2-36  
**Inspection**  
    Enable 2-36  
    Fault Bypass 2-13  
    Invalid 2-64  
    UP/DOWN 2-36  
**Inspection Fault Bypass** 1-6  
**Inspection Operation** 1-5  
**Invalid Access Zone** 2-64  
**Invalid Mode** 2-65  
**Inventory Hall Calls** 1-41, 2-29  
**IO1 - IO8** 2-41  
**IP Address** 2-12  
**Itinerary Manager** 1-14, 2-14

## **J**

**Job Department and Year** 2-5  
**Job Info and Labels** 2-5  
**Job Name** 2-5  
**Job Number** 2-5  
**JP1, CDBPTST** 2-37  
**JP10, A/B** 2-37  
**JP11, ENCODER INTERFACE** 2-37  
**JP2, HDBPTST** 2-37  
**JP4, FLT Bypass** 2-37  
**JP5, PGM SOURCE** 2-37  
**JP6, EDGE/ENCODER** 2-37  
**JP7, EDGE/ENCODER** 2-37  
**JP8, PGM SOURCE** 2-37  
**JP9, ENCODER INTERFACE** 2-37

## **L**

**L24V** 2-40  
**Landing System** 1-14, 2-14, 2-28  
    ID 2-10

- Installation of 1-38
- Installation of Magnets 1-38
- Learn 1-34, 2-13
- Signals 2-15
- Type 2-5
- Utilities 1-14, 2-13
- View 2-13
- Lanterns** 1-47
- Latch Door Close** 2-7
- Latch Door Open** 2-7
- Lead/Acid Batteries** 3-2
- Leveling Overspeed** 2-65
- Light Load Anti-Nuisance** 2-65
- Limit Switches** 1-24
- LLI** 2-22
- LLI Anti-Nuisance** 2-6, 2-65
- LLI, Light Load Input** 1-48
- LOAD DISP** 2-17
- Load Disp** 1-48
- LOAD HEAVY** 2-17
- Load Heavy** 1-48
- Load Hvy** 1-48
- LOAD LIGHT** 2-17
- Load Light Input** 1-48
- LOAD OVER** 2-17
- Load Over** 1-48
- LOAD OVER2** 2-17
- Load Ovr** 1-48
- Load Ovr2** 1-48
- Load Weighers** 1-48
- Lobby Call Timer** 2-8, 2-9
- Lobby Floor** 2-5
- LOCKS** 1-12
- LOPM** 2-41, 2-45
- LOT** 2-22
- Low Oil**
  - Fire I 2-65
  - Fire II 2-65
  - On 2-65
  - Recall 2-65
  - Recall Fail 2-65
  - Shutdown 2-66
- LS Config Error** 2-66
- LS-EDGE**
  - Access Ovrspd 2-66
  - Boot Correction 2-66
  - Boot with Error 2-66
  - Count Error 2-66
  - Floor Checksum 2-66
  - Inspect Ovrspd 2-66
  - Landing System 2-10
  - Learn Active 2-66
  - Position Error 2-66
- LS-QUTE Landing System** 1-24
  - Installation of 1-38
- LS-QUTE-24V** 1-37

**M**

- M2L is Low** 2-67
- M2MV is Low** 2-67

- Machine Rm Inspection** 1-20
- Machine Room Construct** 2-67
- Machine Room Enable** 1-20
- Machine Room Inspection** 2-36
- Magnet Installation** 1-38
- MAIN CLOCK** 2-22
- Main CPI I/Os** 2-13
- Main Fire Recall Floor** 2-5
- Maintenance**
  - Control Plan 3-1
  - Controller, Bi-annual 3-3
  - Controller, Monthly 3-2
  - Controller, Yearly 3-4
  - Hydraulic Auxiliary Power Supply 3-10
  - Intervals 3-1
  - Smartraq Door Operator 3-5
- Maintenance Statistics** 1-16, 2-15, 2-29
- MC-CPI (n) is Offline** 2-67
- MC-CPI Board** 1-45
- MC-CPI-2** 1-18, 1-45, 2-22, 2-33
- MCE SmarTraq** 1-2
- MCE Universal** 1-2
- MDRE Failed to Turn Off** 2-67
- MDRE Failed to Turn On** 2-67
- MEB2 Redundancy Fault** 2-67
- MEB3** 2-22
- MEB3 Failed to Turn Off** 2-67
- MEB3 Failed to Turn On** 2-67
- Menu Tree** 2-4
- Micro-SDRAM Card** 2-74
- Microsoft Word** 2-82
- Middle Door Lock String** 2-54
- MLT** 2-22
- Motion I/O** 2-14, 2-28
- Motion IO** 1-14
- Motor Contactor Power** 2-43
- Motor Time Limit** 2-8
- Motor Time Out** 2-68
- Motor Time Out Shutdown** 2-68
- Motor/Valve Limit Timer** 2-80
- MPME** 2-22
- MR Inspection** 2-67
- MRDN** 2-22
- MREN** 2-22
- MRIN** 2-22
- MRUP** 2-22
- MSAF Input Failure** 2-68
- MSAF Is High** 2-68
- MSAF is Low** 2-68

## N

- NDF** 2-44
- NDF OUT** 2-22
- NEC, U.S.** 1-5
- Network Settings** 1-13, 2-12
- New Target** 2-15
- Next Target** 2-15
- No Door Zone Fault** 2-68
- No Leveling Fault** 2-68
- NOT USED** 2-19

**NTS1 Switches** 2-10  
**NTS2 Switches** 2-10  
**NUDG** 2-19, 2-23  
    BUZER 2-19  
**Nudging** 2-69  
    Front 2-44  
    Open, and Close Voltages 2-44  
    Sense 2-6  
**Number of Cars** 2-5  
**Numeric Entry Screen** 2-2

## O

**OBD** 1-11, 2-2  
**OIL LOW** 2-17  
**OIL LOW C** 2-17  
**Oil Over Temperature** 2-69  
**OIL PRESS** 2-17  
**Oil Press Recall Fail** 2-69  
**Oil Pressure**  
    Recall 2-69  
    Shutdown 2-69  
    Switch On 2-69  
**Oil Tank Temp Shutdown** 2-40  
**Oil Temp**  
    Fire I 2-69  
    Fire II 2-69  
    On 2-69  
    Recall 2-69  
    Recall Fail 2-69  
    Shutdown 2-70  
**OIL VISC** 2-17  
**Oil Viscosity** 2-70  
**On/Off Status of Dedicated Inputs** 2-13  
**On/Off Status of Dedicated Outputs.** 2-13  
**On/Off Status of Door Control Inputs/Outputs** 2-14  
**On/Off status of landing system inputs/outputs** 2-14  
**On/Off Status of Programmable Inputs** 2-13  
**On/Off Status of Programmable Outputs** 2-13  
**Open Doors** 2-11  
**Open Limit Time** 2-8  
**Orange Event Text = Error** 2-14  
**Oscilloscope** 2-29  
**Other Car Settings** 1-15, 2-15  
**Out of Service** 2-70  
**Outputs** 2-8  
**Overlay** 2-11  
**Overload** 2-70  
**Overload 2** 2-70  
**OVL, Overload Input** 1-48

## P

**Paper Insulator** 2-36  
**Parameter**  
    Load Error 2-70  
    Range Fit 2-70  
    Selection Screen 2-3  
    Storage Fault 2-70  
**Park At Secured Floor** 2-11  
**Parking Timer** 2-9

**Passcode** 1-58, 2-5  
**Passcode Enabled** 2-70  
**Passenger Mode** 1-8, 2-71  
**PFG** 2-23  
**PFG ENABL** 2-17  
**PHE** 2-17, 2-23  
    Anti-Nuisance 2-6, 2-71  
    Anti-Nuisance Disabled 2-71  
    Bypass 2-71  
    CUT 2-17  
    Fail 2-71  
    Shortens CCT 2-7  
**PHE-C** 2-17  
**PIT FLOOD** 2-17  
**Pit Flood** 1-6  
**PLD** 2-23, 2-71  
    & Processor Resets 2-36  
    Diagnostics Tree 2-28  
    Flags 2-14  
    Inputs 2-14  
    Numeric 2-14  
    Outputs 2-14  
    RX Communication 2-71  
    RX Message 2-71  
    TX Communication 2-71  
    TX Message 2-71  
    Write Fault (Edge) 2-71  
**PM** 2-43  
**PME.B** 2-23  
**PMEP** 2-23  
**PMP** 2-23, 2-41  
**Pollution** 1-5  
**Position Indicators** 1-47  
**Positioning** 2-71  
**Power Input** 1-3, 1-5  
**Power On Behavior** 1-38  
**Pref Car to Run on EP2** 2-11  
**Pre-Open Doors** 2-6  
**Pretest** 1-5, 2-36  
**Primary Dispatcher** 1-53, 2-10  
**Primary Motor Contactor** 2-41  
**Primary Parking Door Operation** 2-5  
**Primary Parking Floor** 2-5  
**Processing Car Calls** 2-71  
**Programmable Input** 2-40  
**Programmable Input/Outputs** 2-41  
**Programmed Inputs** 2-13, 2-15, 2-28  
**Programmed Outputs** 2-13, 2-15, 2-28  
**PTI** 2-17, 2-23  
**PTI C** 2-17  
**PTI Recall** 2-72  
**PTI Shutdown** 2-72  
**Pump Power is Off** 2-72  
**Pump Unable to Start** 2-72

## Q

**Quad Sensor Loss (Edge)** 2-72  
**Quadrature** 2-40  
**Quadrature Loss CH-B** 2-72  
**Quadrature Offset CH-B** 2-72

**Quick Setup** 1-13

## **R**

**R2** 2-17

**Random Calls Generator** 2-72

**Random Car Calls Gen** 2-72

**Random Hall Calls Gen** 2-72

**Recall**

1 Floor 2-6

Car Calls Dispensation 2-12

Complete 2-72

Done 2-72

Done Switch 1 (2, 3, or 4) 2-73

Door Operation 2-12

Latch Switch 2-12

On Switch 1, 2, 3, or 4 2-73

Override Independent 2-12

Override Security 2-12

Recall Floor 2-12

S1 2-17

S2 2-17

S3 2-17

S4 2-17

Switch 1,2, 3, or 4 2-73

Switches 1-13

**Recall SW Bypassed** 2-73

**Recalling** 2-73

**Redundancy Faults** 2-48

**Relevel Distance** 2-10

**Remote Calls Override Security** 2-11

**Restore Backup Settings** 2-13

**Restore Factory Settings** 2-13

**Resynchronization Days** 2-7

**Resynchronization Time** 2-7

**RG** 2-43

**RGOK** 2-40

**Riser Assignment** 1-40, 1-43

**Rope Gripper** 2-43

**Rope Gripper OK** 2-40

**RSTA** 1-20

**RSTB** 1-20

**RSTC** 1-20

**RSTP** 1-20

## **S**

**SAFC** 2-43, 2-44

**SAFC.P** 2-23

**SAFE EDGE** 2-17

**SAFE EDGE C** 2-17

**SAFETY** 1-12

**Safety** 1-4

**Safety Codes** 1-5

**Safety Tests** 2-13

**SAFH** 2-43

**SAFH Input Low** 2-74

**SAFH.B** 2-23

**SAFP** 2-23

**SANE(x)** 2-23

**Save Button** 2-2

**Saving Dispatch Params** 2-74

**Saving Other Car Params** 2-74

**SC-3HN** 1-18, 1-39, 1-42, 2-19

**SC-3HN Addresses** 1-40, 1-43

**SC-3HN-2** 1-42

**SC-3HN-2 Riser Assignment** 1-43

**SCE-CON** 1-18, 2-23, 2-31

Connector Assignments 2-31

**SCE-CPU** 1-3, 1-20, 2-26, 2-35

Battery 2-36

Jumpers 2-37

**SCE-HVI** 1-3, 2-42

**SCE-UPD** 1-3, 1-21, 2-45

**Scope** 2-15, 2-29

**Screen Freeze** 2-2

**S-Curve** 2-10

**SD Card** 2-26

**SD Card Error** 2-74

**SD File System Error** 2-74

**SD MICRO** 2-41

**SE** 2-23

**SE Bypass** 2-74

**SE Bypass Timer** 2-9

**SE Fail** 2-74

**Secondary Parking Door Operation** 2-5

**Secondary Parking Floor** 2-5

**SECRTY OV** 2-17

**Security**

Disabled 2-74

Enabled 2-11

**Selective Collective** 1-5

**Serial Hall Calls** 1-39, 1-42

**Serial PI Configuration** 1-47

**SERV IN** 2-19

**SERV OUT** 2-19

**Set Time and Date** 2-13

**Short Door Timer** 2-8

**Shortcuts** 2-4

**Shorts to Ground** 1-21

**SHUTDOWN** 2-19

**Simplex** 1-5, 1-13

**Simplex Car ID Error** 2-74

**Sleep Mode Timer** 2-9

**SLOW INSP** 2-17

**Slow Inspection Speed** 2-10

**SmarTraq Door Operator** 3-5

**Smartraq Door Operator Maintenance** 3-5

**SMI** 2-17

**Smoothing Tape Edges** 1-26

**Softstop Delay** 2-11

**Software Update** 2-38

**Software Version** 2-15, 2-29

**Solid State Starter** 1-23, 2-47

**SPA** 2-23

Door Dwell Times 2-14

Flags 2-14

LS-EDGE is Offline 2-74

Motion Numeric 1-14, 2-14

Numeric 1-14, 2-14

PLD Osc Stopped 2-74

PLD Read Error 2-74

- SPB is Offline 2-75
- SPC is Offline 2-75
- Spare I/O Assignment** 2-8
- Spare Inputs** 2-8
- Spare Outputs** 2-8
- SPB** 2-23
  - Flags 2-14
  - Inputs 2-14
  - LS-EDGE is Offline 2-75
  - Numeric 2-14
  - Outputs 2-14
  - Parameter Update 2-75
  - Powerup/Reset 2-75
  - SPA Comm Sync 2-75
  - SPA Heartbeat 2-75
  - SPA is Offline 2-75
  - SPC Comm Sync 2-75
  - SPC is Offline 2-76
- SPC** 2-23
  - 3HN Comm Loss 2-76
  - CAN 3 Comm Loss 2-76
  - CAN Comm Loss 2-76
  - Flags 2-14
  - Inputs 2-14
  - Numeric 2-14
  - Outputs 2-14
  - SPA is Offline 2-76
  - SPB is Offline 2-76
  - Started Up 2-76
- SPD(n)** 2-23
- Speed and Acceleration Control** 1-47
- Start Position** 2-15
- Starter Operation** 1-23
- Starter Selection** 2-10
- Starter Type** 2-10
- Status Info** 2-29
- Status Information** 1-13, 2-5
- Status of Dedicated Inputs** 2-13
- Status of Dedicated Outputs** 2-13
- Status of Door Control Inputs/Outputs** 2-14
- Status of Landing System Inputs/Outputs** 2-14
- Status of Programmable Inputs** 2-13
- Status of Programmable Outputs** 2-13
- STD** 2-17
- Steel Tape** 1-26
- Step Up, Step Down Positions** 1-35
- Stick Alignment** 1-29
- Stopping Accuracy** 3-2
- STU** 2-17
- Stuck Car Call** 2-76
- Stuck Door Open Button** 2-77
- Stuck Door Zone Fault** 2-77
- Stuck Down Hall Call** 2-77
- Stuck Insp Input** 2-7
- Stuck Leveling Fault** 2-77
- Stuck PHE Timer** 2-9
- Stuck Photo Eye** 2-77
- Stuck Safe Edge** 2-77
- Stuck Sensor (Edge)** 2-77
- Stuck Up Hall Call** 2-77

- Subnet Mask** 2-12
- Supported Door Operators** 1-2
- SW5** 2-38
- System Control Parameters** 2-10
- System Inputs** 2-13, 2-15, 2-28
- System Outputs** 2-13, 2-15, 2-28
- System Timers** 2-8, 2-9

## T

- Tape Cleaning** 1-26
- Tape Guides** 1-38
- Target** 2-15
- Temperature** 1-5
- TERM Switch** 1-43
- Terminal Switch Learn** 2-77
- Terminal Sync (Edge)** 2-77
- Terminate the CAN** 2-34
- Test** 1-5
  - Hall Calls 1-41
  - Mode 1-9, 1-49
- Test Hall Calls** 2-29
- Test Mode** 2-36, 2-78
- TEST/PRETEST** 2-36
- Test/Pretest** 1-20, 1-49, 2-36
- Thermal Overload** 2-40
- Top Access Distance** 2-10
- Top Access, DOWN** 2-40
- Top Access, UP** 2-40
- Top Deviation (Edge)** 2-78
- Top Floor** 2-5
- Top Terminal Test** 1-57
- Touchscreen** 2-2
- Touchscreen Locks Up** 2-2
- TP1** 2-44
- TP2LS** 2-44
- TPEB3** 2-44
- TPEB34** 2-44
- TPEB4** 2-44
- TPMSAF** 2-44
- TR\_HY** 2-41, 2-51
- TRACTION** 2-23
- Troubleshooting Example** 2-48

## U

- UCF** 2-23
- UETS** 2-23, 2-43
- UFE/PM** 2-43
  - Stuck Off 2-78
  - Stuck On 2-78
- UIM** 2-23
- UIM RST** 1-20
- UIMRST** 2-23
- UL508C** 1-5
- ULM** 2-17, 2-23
- Undo** 2-2
- Unintended Motion Reset** 2-36
- Unknown Fault** 2-78
- Up Emergency Terminal Switch Input** 2-43
- Up Fast Enable Output** 2-43



[Up Slow Enable Output 2-43](#)  
[Up Slow Limit 1 Input 2-43](#)  
[Up Slow Limit 2 Input 2-43](#)  
[Up Terminal Limit Input 2-43](#)  
[Up to Speed Delay 2-11](#)  
[Up Valve Unable to Open 2-78](#)  
[USB 2-23, 2-41](#)  
    [Drive 2-25](#)  
    [Drive Inserted 2-78](#)  
    [Drive Removed 2-78](#)  
    [File System Error 2-79](#)  
[uSD 2-23](#)  
[USE/BR 2-43](#)  
[USE/BR Stuck Off 2-79](#)  
[USE/BR Stuck On 2-79](#)  
[User Defaults 2-13](#)  
[USL1 2-43](#)  
    [is Low 2-79](#)  
    [Position Low 2-79](#)  
[USL1/USL2 Mismatch 2-79](#)  
[USL2 2-10, 2-43](#)  
    [Position Low 2-79](#)  
[USLx 2-23](#)  
[USLx and DSLx Low 2-79](#)  
[UTILS Menu 2-13](#)  
[UTL 2-23, 2-43](#)  
[UTL and DSLx Are Low 2-80](#)  
[UTL and DTL Low 2-80](#)  
[UTL is Low 2-80](#)

## **V**

[Valve Time Out Shutdown 2-80](#)  
[Valve Type 2-10](#)  
[Version Information 2-15](#)  
[Viscosity Switch On 2-81](#)  
[VLT Fault 2-80](#)

## **W**

[Waiting for In-Car SW 2-81](#)  
[Warning Faults Bypassed 2-81](#)

## **X**

[X1B 2-46](#)  
[X2B 2-46](#)  
[XD1 2-46](#)  
[XD2 2-46](#)  
[XL1 2-46](#)  
[XL2 2-46](#)

## **Y**

[Yellow Text = Fault 2-14](#)