Plug & Play
Retrofit
CONTROLLER
OPERATIONS MANUAL
Model: 4M2VFLEVHW2

(Rev 10-10-14)

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*** WARNING ***

The information in this manual is intended for the sole use of professional elevator technicians.

Electro Mech Industries Inc. assumes no responsibility for injury, illness, damage to property, or death as a result of the use or misuse of any information contained in this manual.

Installation, maintenance, or repair of the elevator, must be performed by qualified, experienced, and trained elevator technicians. Technicians must have five years of hands-on experience with elevator equipment.

The procedures in this manual are to be used as a general guide for the elevator technician. Working in the elevator hoistway and on elevator equipment can be dangerous. All Safety Rules associated with installing elevator equipment must be followed at all times. Proper protective equipment must be used at all times during installation, maintenance and repair of the elevator equipment.

Read this manual carefully. Be thoroughly familiar with all parts and procedures before attempting any installation, maintenance or repair functions on this equipment. Failure to do so may cause damage to equipment, improper installation, unsafe operation, possible injury or death.

*** WARNING ***

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1-1) SUPPORT:

If you do experience a problem, or are not sure of the correct operation, please call the factory for assistance. In most instances we can help resolve the situation quickly without extensive loss of time on the job site.

When assisting on a unit, it is more efficient to talk directly to the installation technician. This not only reduces the chance of miscommunication, it also reduces the time required for the technician to get the information he needs. When calling, always have the unit's serial number and a P-Tool available.

We are available to accept your calls from 8:00 am to 5:00 pm, Central Time, Monday through Friday.

Electro-Mech Industries Inc.
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1-2) GENERAL INFORMATION:

Since TKA's announcement that they will terminate their North American Residential Elevator operations, we have moved forward with providing a LEV retrofit control system to the industry. We offer control systems for both chain drive and hydraulic units.

Features & Benefits:

- Reuse of the following ancillary components
  - Hall Stations
  - COP
  - Selector
  - Automatic Gate Operator
  - TKA Temp Run Pendant (to run car only)
- Reuse of all CAT-5 cables
- Reuse all wire harnesses with pluggable Terminal strips as is

Retrofit Limitations:

- 4 Stops Maximum
- No fault codes to hall stations

Installation Overview:

1. Un-plug all CAT-5 and travel cable connectors and remove all wiring to original controller
2. Remove original controller PCB and plastic standoffs
3. Install retro fit subpanel into original enclosure
4. Reconnect all individual wires to new subpanel
5. Install hinged door panel
6. Reconnect all CAT-5 & travel cable wires
7. Un-plug all connectors to original COP Interface PCB & remove
8. Install Retrofit COP Interface PCB (Same mounting points)
9. Plug in all original connectors to Retrofit COP Interface PCB
10. Reposition Selector magnets
11. Program Job specific parameter to controller
12. Return car to service

1-3) SPECIAL OPERATIONS:

1. **Board Re-set:** Any time that the controller is powered up, or the star key on the P-Tool is pressed, the system will automatically go into a Re-set sequence. During this sequence, **if all of the required safety circuits are made** (normal run requirements), the Unit will respond as follows:
   A. If not at a floor, unit will automatically lower itself to the first floor encountered.
   B. If at floor level, unit will re-set and then return to normal operation.
   C. If in a floor Zone but not level, unit will move to that floor level.

- **Warning**: If you jump out key safety circuits and then the power is turned on, or the re-set key is pressed, the unit may move when not expected. This can create a hazardous situation that could cause injury or even death. **Do not jump out safety circuits**. Provisions have been made to run unit on Temporary Mode, which will be explained in this manual.

2. **Emergency Lowering during Power Failure:** Once the controller senses a loss of power, the emergency light output "EL" will activate and the buzzer output "BZ" will pulse for 1sec every 15 sec. The elevator will respond as follows:
   A. Power loss during an UP run, the destination call will be dropped and the unit will automatically lower itself to the next lowest floor. If that floor is not the lowest landing, car can be moved to a lower landing by pressing the selected floor button.
   B. Power loss during a DOWN run, the destination call will be dropped and the unit will automatically lower itself to the next lowest floor. If that floor is not the lowest landing, car can be moved to a lower landing by pressing the selected floor button.
   C. Power loss while at a floor, unit will stay at the floor level. If a call is placed to a lower floor, and all normally required safety circuits are in the correct state, the unit will lower to the requested floor.
   - **Note:** The "EL" and "BZ" output will disable themselves 30 sec after the lower terminal floor had been reached.

3. **Run Timer:** If the Run Timer times out unit will respond as follows:
   A. Hydraulic unit running up, unit will respond the same as in Emergency Lowering.
   B. Hydraulic unit running down, unit will stop and shut down. If unit is level at a floor and power gates are being used, the gate will open.
   C. Drum units running up or down, unit will stop and shut down. If unit is level at a floor and power gates are being used, the gate will open.

- **Note:** In order to reset a drum unit after a Run Timer trip, you must manually move the car to a floor level before a reset can be performed. Floor level is selector inputs DZ & PX on and UL & DL signals off.

1-3) SPECIAL OPERATIONS: (continued)

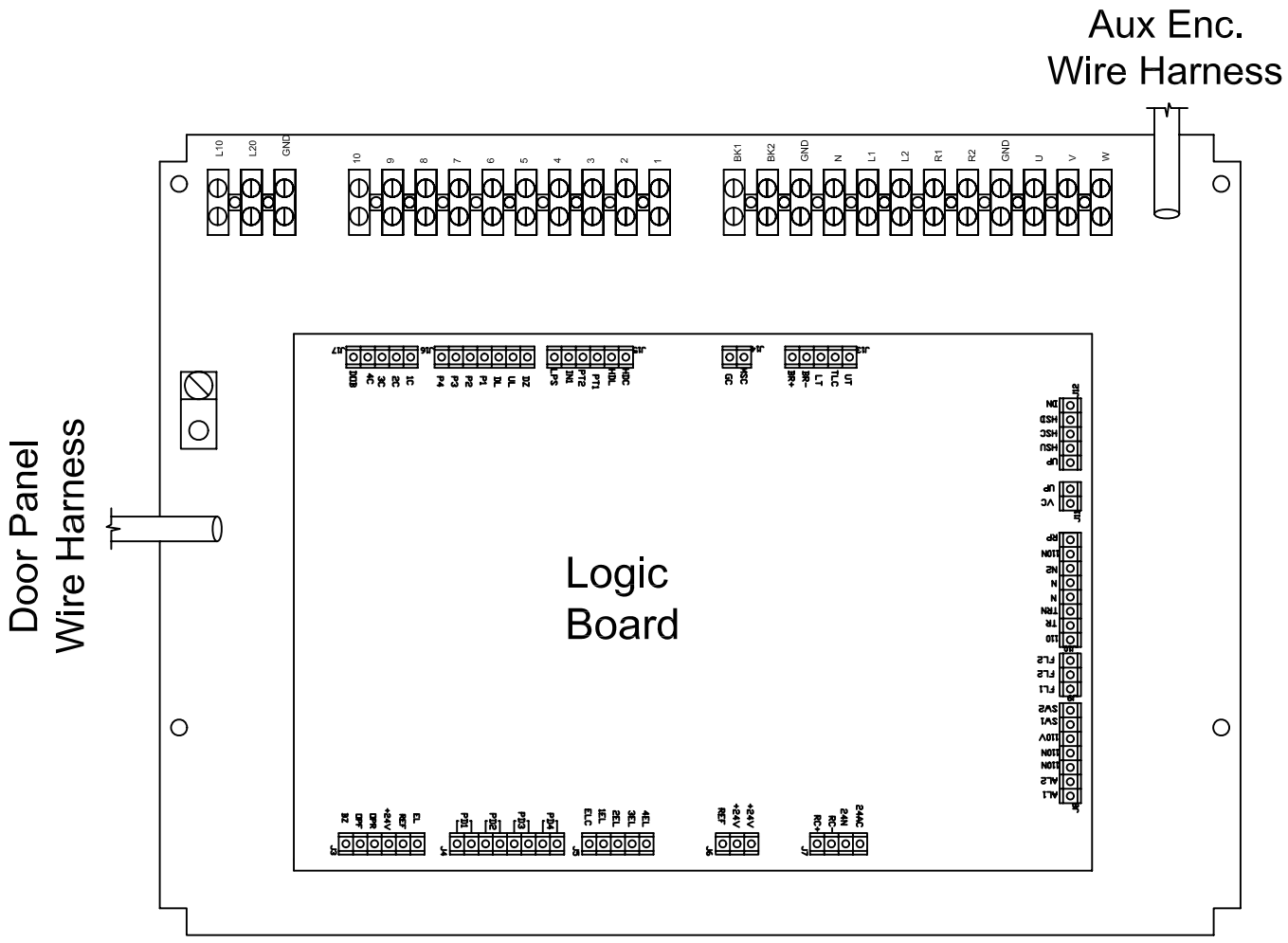
4. **Power Gate:**
   A. If the open command is given (OPR or OPF) and the gate does not open within 2 seconds, the open command will turn off for ten seconds and then retry the open command. After 3 attempts without the gate opening, the unit will wait for another open request.
   B. Sequence is the same for closing; a failure will allow 3 attempts before call is cancelled.

5. **Sabbath Control:** When input IN1 is activate (+24V) the unit goes to Sabbath mode and will respond as follows:
   A. Unit will travel to the Lower Terminal Floor (LTF) and disable a calls.
   B. Wait one minute at LTF , then run up to the next highest floor.
   C. Wait one minute at floor, then run up to the next highest floor.
   D. This will repeat until the Upper Terminal Floor (UTF) is reached.
   E. When the UTF is reached unit will wait one minute then run down to next lower floor.
   F. This will repeat to each next lower floor
   G. When LTF is reached the unit will wait 15 minutes then begin run cycle again.
   H. When the IN1 input is deactivated, the unit will return to normal operation.

1-4) CONTROLLER LAYOUT

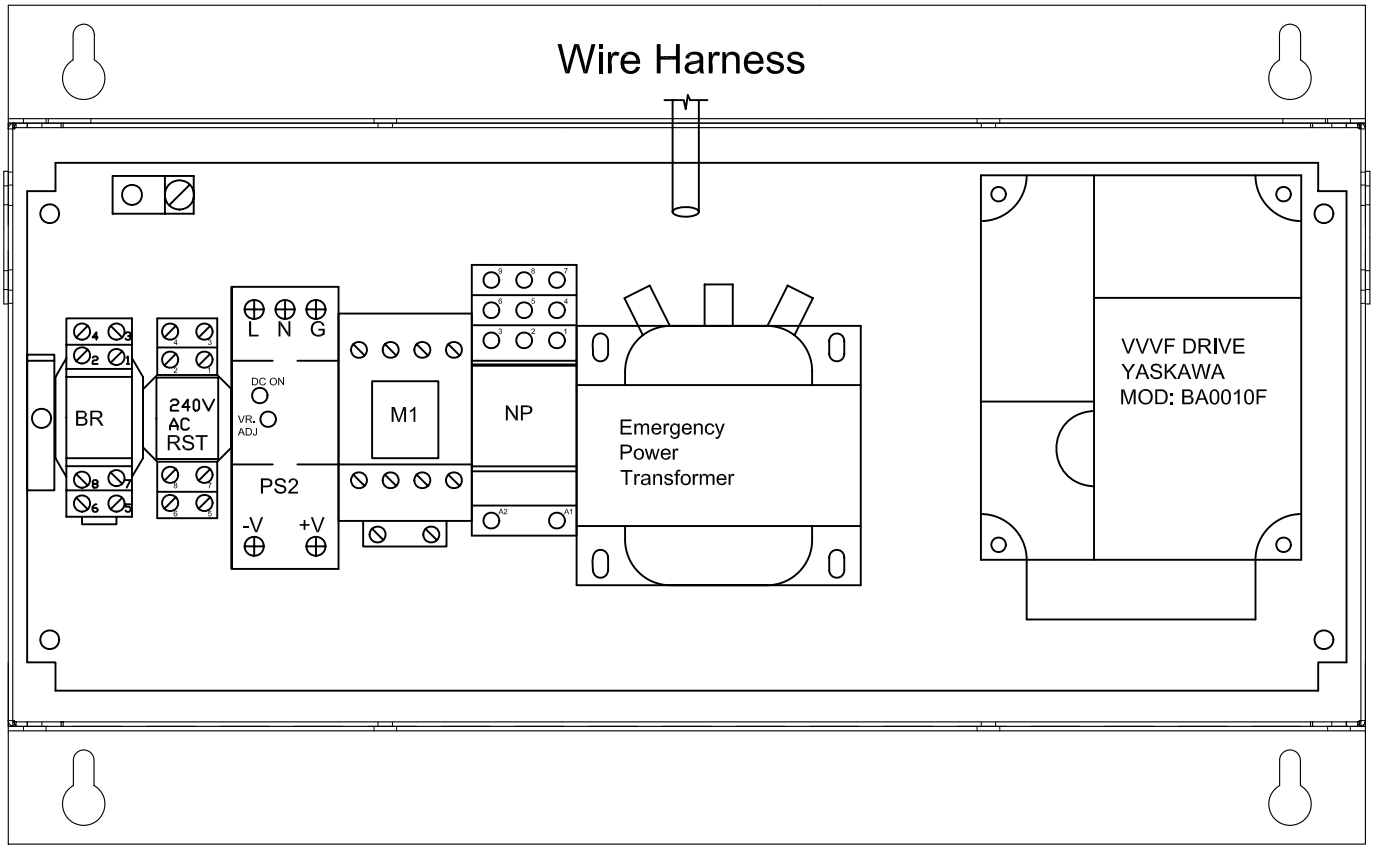
The retrofit controller is seperated into sections. The reason is to allow this system to integrate into all existing LEV installations.

Section one: This is a subpanel containing the logic board and incoming terminal strip.
This unit will be mounted into the original LEV controller enclosure.
The terminal strip is a direct wire for wire exchange with the original LEV controller.
A two foot whip is provided which connects this subpanel to section two.
The two foot whip is intended to exit the enclosure at the top right.
Another whip is provided to connect the subpanel to the door mounted interface PCB.
The following is a representation of this subpanel.



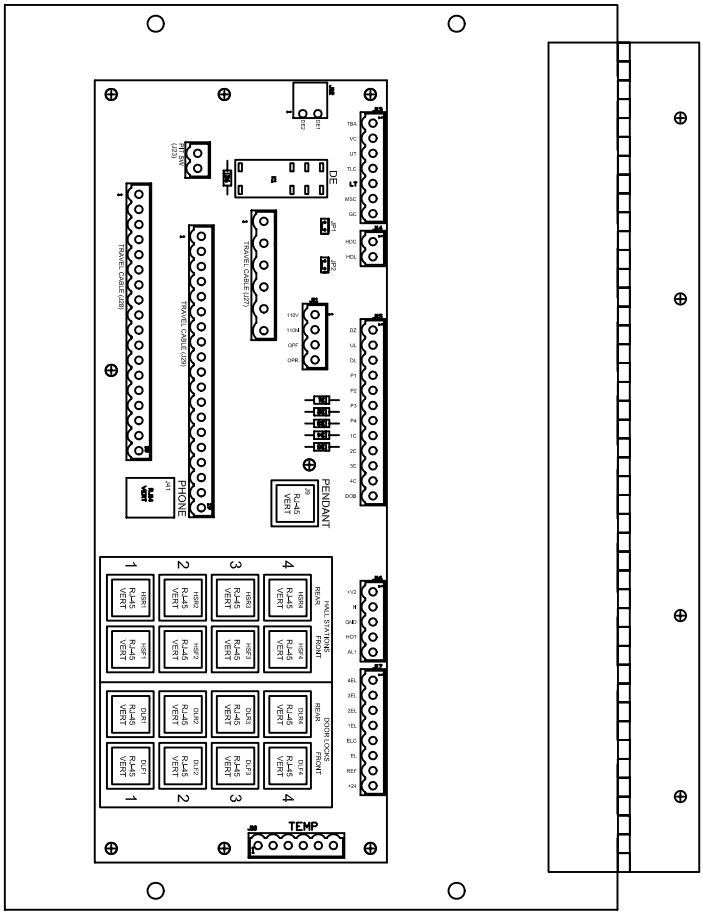
1-4) CONTROLLER LAYOUT

Auxiliary Enclosure: This enclosure contains the VVVF drive and other components.
It comes with a two foot whip which exits the enclosure at the top center.
The following is a representation of this enclosure.



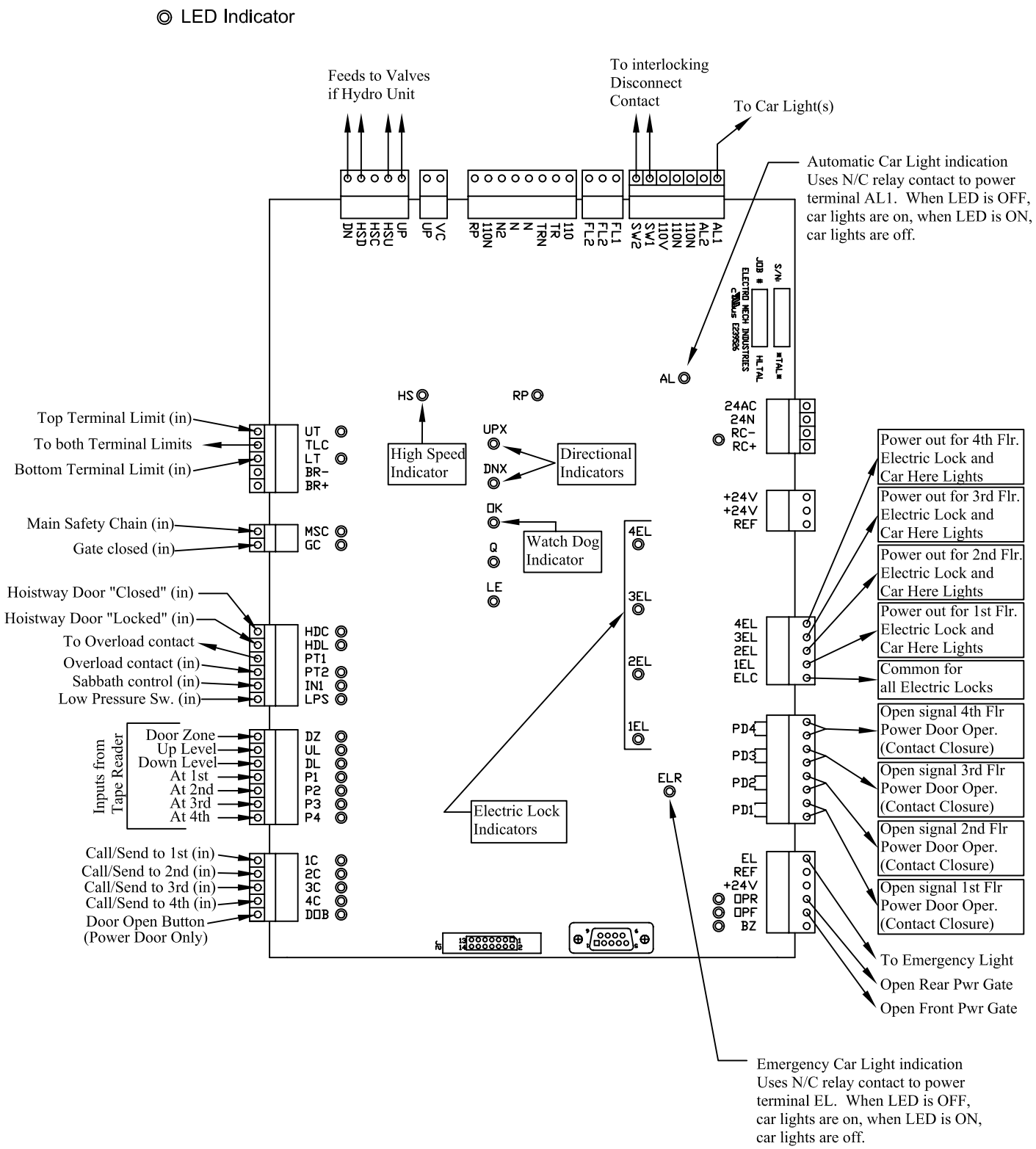
1-4) CONTROLLER LAYOUT

The following is a representation of the new door panel for the original enclosure.
All existing LEV tavel cable and CAT-5 wires are connected to this PCB.
This assembly will replace the left door panel of the original enclosure.



1-5) LOGIC BOARD INPUTS & OUTPUTS

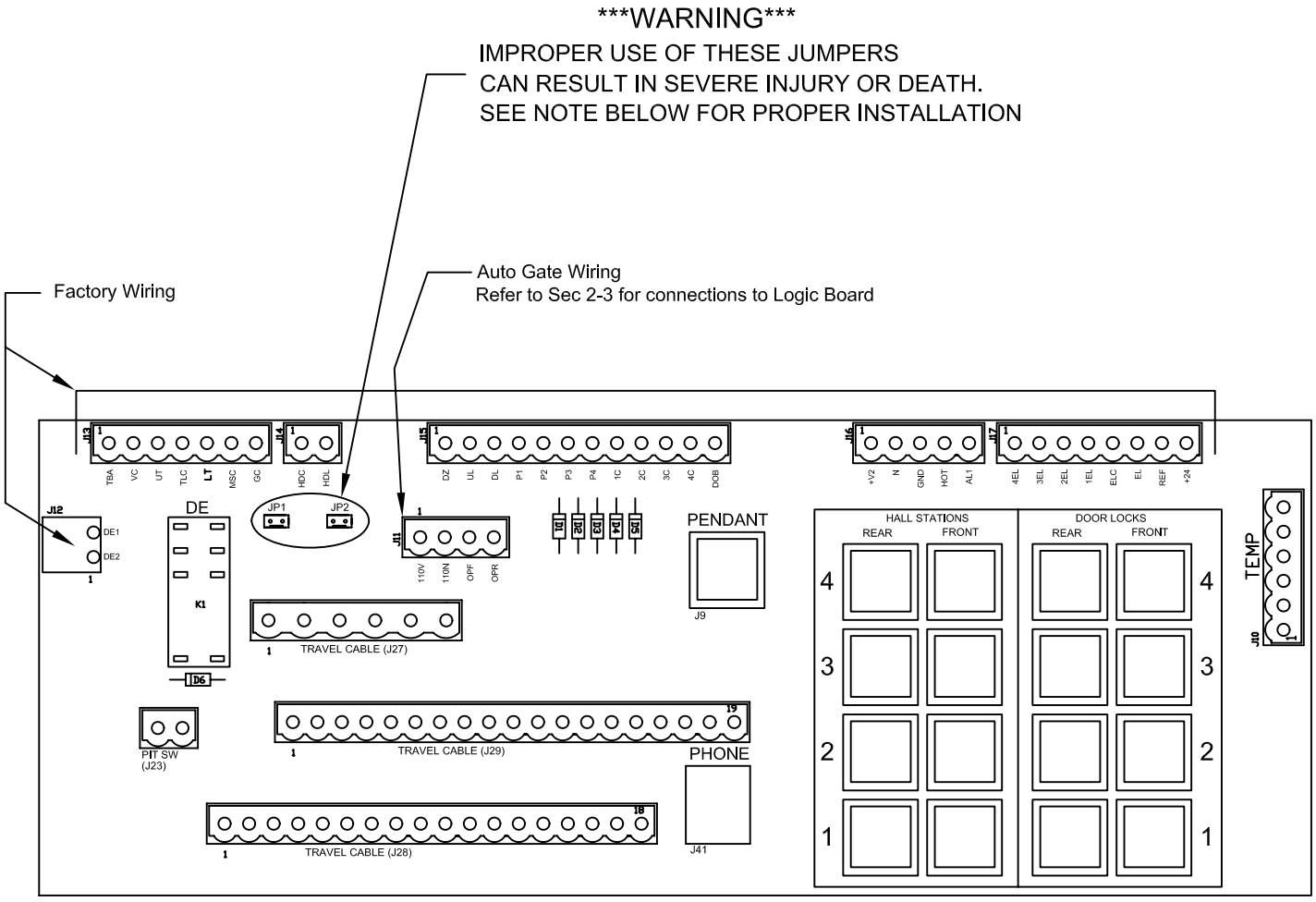
Most of the inputs and outputs are easy to identify but here is a brief map to describe there funtion and their location on the logic board.



1-6) CONTROLLER INTERFACE

This PCB is required to transition from the "Plug & Play" configuration of the original controller to the single wire configuration of the logic board.

This PCB is mounted to the new door panel



Notes: JP1 & JP2

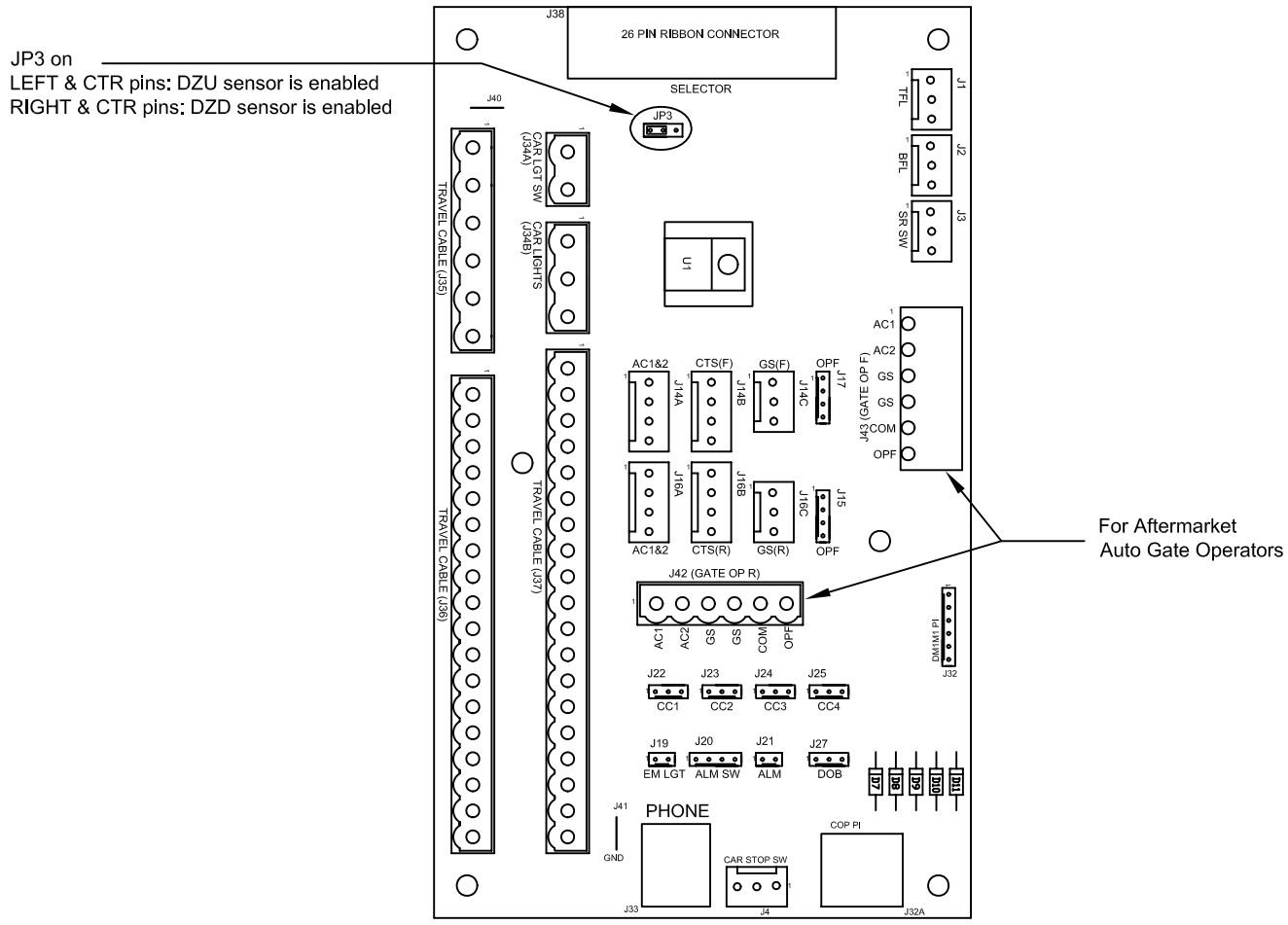
Purpose: To allow future retrofit of various aftermarket door locks to the system.

Function:
JP1: Jumps Gate Closed (GC) to Hoistway Door Closed (HDC)
JP2: Jumps Hoistway Door Closed (HDC) to Hoistway Door Locked (HDL)

Installation:
1. DO NOT install neither jumper if you are using:
   a. The original door interlocks
   b. Aftermarket interlocks with seperate door close and lock contacts
2. Install only JP1 if you are using aftermarket interlocks w/ a single set of contacts for closed & locked along with a manual gate
3. Install onlyJP2 if you are using aftermarket interlocks w/ a single set of contacts for closed & locked along with a auto gate
4. NEVER INSTALL BOTH JP1 and JP2

1-7) COP INTERFACE

This PCB completes the transition from single wire to Plug & Play and is a direct mechanical replacement for the original COP PCB.



2) RETROFIT PROCEDURE

The original enclosure will be reused for the retrofit conversion. The stand-alone subpanel will replace the existing LEV main PCB. Due to space limitations an auxiliary enclosure is required with our system. This enclosure can be mounted at any convenient location with four feet of the upper right side of the original enclosure.

2-1) ORIGINAL ENCLOSURE RETROFIT

1. Remove enclosure covers
2. Remove door lock CAT-5 jumpers and connect them to the same location(s) on the interface PCB mounted to the new door panel
3. Remove and label all CAT-5 cables.
4. Unplug all terminal strips.
5. Remove and label all incoming wiring from the top of the original PCB
6. Remove original PCB and plastic standoffs
7. Reattach blank cover panel to right side of enclosure (originally located on left side)
8. Attach new door panel to left side of enclosure using original screws
9. Drill through hinge into enclosure with the #8-18 x ½" self drill screws
    a. Remove all debris from enclosure
10. Fasten new subpanel into the enclosure with four #12-14 x 1" self drilling screws
11. Bring "Aux enclosure" wire harness out from the enclosure
12. Reconnect incoming wiring.
    a. Nomenclature has not changed.
    b. Some original wires are not reused.
13. Connect door panel wire harness to interface PCB
14. Reconnect all CAT-5 cables and traveling cable terminal strips to interface PCB

2-2) AUXILIARY ENCLOSURE INSTALLATION

The auxiliary enclosure must be mounted vertically on a wall close to the original enclosure.

1. Remove knockout from enclosure
2. Bring wire harness out of enclosure
3. Determine the appropriate location so the wire harnesses can reach each other.
4. Mount the auxiliary enclosure
5. Connect wire harnesses

2-3) WIRING INFORMATION

1. Schematic drawings: (Refer to the 7 page drawing with the SCH suffix) These drawings show a system with all features and control options that are available with the Retro fit controller. Insure all power wires are connected per schematic.

   - Note: All wiring shown below the terminals, shown as a circle with a square around it, are circuits or connections outside of the logic board. Wiring shown above those terminals, are circuits that are on the logic board.

2. Auto Gate Installations:
   The following connections must be made within the controller:

INTERFACE PCB			LOGIC BOARD	
Header	Terminal	TO	Header	Terminal
J11	110V		J8	110V
J11	110N		J10	110N
J11	OPF		J3	OPF
J11	OPR		J3	OPR

3. JP1 & JP2:
   To confirm the need and installation of these jumpers, refer to sec.1-6

*****WARNING*****

IMPROPER USE OF THESE JUMPERS CAN RESULT IN SEVERE INJURY OR DEATH

4. Plug in all connectors and CAT-5 cables to their appropriate terminals.

2-4) COP INTERFACE

1. Remove and label all connectors
2. Remove original COP Interface PCB
3. Mount new COP Interface PCB
4. Confirm that JP3 is connected
5. Insert all required connectors

2-5) POSITIONING SELECTOR MAGNETS

The original selector, flags and magnets will be re-used for the retro fit controller. In order to obtain the required inputs to the retro fit controller, some of the magnets will have to be re-located on its given flag.

Refer to Appendix B for the modified magnet configurations.

- Note: Magnet configurations vary based on the number of stops

2-6) CONNECTING P-TOOL

THIS SECTION IS INTINALLY LEFT BLACK

3-1) PROGRAMMING TOOL (P-Tool) Functions

The P-Tool is available in either a board mount or held versions. The recommended minimum is that each installation technician have a P-Tool.

The P-Tool can be used to:
- View the status of the elevator
- Change parameter settings
- View and clear the fault log
- View and clear the counters
- Put the system into Temporary Run Mode
- Run the elevator while in Temporary Run Mode

Note: While using the P-Tool in programming mode, the elevator will not respond to calls

Note: The P-Tool is rendered in-operable while the elevator is running. The elevator must be at rest.

3-2) PARAMETER DESCRIPTION & FUNCTION

The controller parameters are set to factory default. You will need to configure each controller to the specifics of that installation.

1. **Password**: Factory default is 12345. Password must be 5 characters in length and must be numbers. The A,B,C,D keys can not be used for password.

   - **Note:** If you change the password, use one that you **will not forget**. If you forget the password you will not be able to access the Program menu. The only recourse for access is to return the control board to the factory for a password re-set.

2. **Number of Floors**: {default = 2} Selection is 2,3, or 4.

3. **Single Automatic PB**: {default = Y} “Yes” is for automatic, “No” selects Constant Pressure

4. **Drive System:** {default = 0} Selections are (0) Drum or (1) Hydro

5. **Fixed Cam:** {default = 1} GAL locks require (1) Yes, EMI locks or retiring cam require (0) No

6. **Delay Up Stop:** {default = 0} Used only on Hydro applications to create a larger dead zone between top of magnet and UL sensor. This helps reduce or eliminate re-leveling due to temperature or loading variations. Time increment is **10 milliseconds**; range is 0-200

7. **Run Timer:** {default = 90} All units. Time increment is in **seconds**, range is 30-180

8. **Car light Timer:** {default = 5}This is for the automatic car light and determines the time that the car light will remain on after completion of a call when the car gate and hoistway door are closed. Time increment is **minutes**; range is 1-10.

9. **Non-Interference Timer:** {default = 10} Time between the completion of a run and the acceptance of another call. Time increment is **seconds**: range is 2-60.

3-2) PARAMETER DESCRIPTION & FUNCTION (continued)

10. **Car Call Cancel Timer:** {default = 10}This is the time that a call will be held while a gate or door is still open. If gate or door is not closed within this time period, the call will be dropped. Time increment is in **seconds**; range is 0-60.

11. **Automatic (Power) Gate:** {default = 0} Selections are (1) Yes, or (0) No. If Yes is chosen then parameters 12-17 will show for selection entries. If No is chosen, then you will not see these parameters. These settings control which gate open signal is present for that floor.
Floors that do not coincide with your number of stops may be ignored, as they will not have any effect on the system. Example: 3 stop unit, default entry may be left for the 4th floor.
"Rear" indicates use of two gates, the second gate may also be located adjacent.

12. **Floor 1 Gate:** Selections are (1) Front only, (2) Rear only, (3) Front & Rear opening.

13. **Floor 2 Gate:** Selections are (1) Front only, (2) Rear only, (3) Front & Rear opening

14. **Floor 3 Gate:** Selections are (1) Front only, (2) Rear only, (3) Front & Rear opening

15. **Floor 4 Gate:** Selections are (1) Front only, (2) Rear only, (3) Front & Rear opening

16. **Gate Open Timer:** {default = 15}Time that the power gate is open after completion of a call. This includes the time that it takes the gate to open. Time increment is **seconds**; range is 5-60.
    - **Note:** Enhanced on Software version 1.3. Refer to sec. 5-2 for details.

17. **Gate Re-open Timer:** {default = 10}Time that the power gate is open after a door open button is activated, or a call, from the floor where the car is parked, is registered.
    Time increment is **seconds**; range is 5-60.

18. **G & D Timer Cancel:** {default = 1} Selections are (1) Yes, (2) No. If Yes, is chosen, then the Gate Open time and DC time settings will be interrupted and canceled when a call is placed. Example: If you have chosen a open time for power gate or power door to be 20 seconds, and a call is registered after 10 seconds of open time, the remaining 10 seconds will be cancelled and the gate or door will start to close immediately upon the call being placed.

    - **Note:** If your power gate and/or power door unit is being used in an application where the user may need most of the open time to enter or exit the car, then you may want to set this selection to (2) so the open time always remains at the setting.

19. **Homing Floor:** {default = 0} Allows home return feature to selected floor. Selections are (0) No homing, (1) to 1st, (2) to 2nd, (3) to 3rd, and (4) to 4th.

20. **Homing Timer:** Time car parks at a non-home floor, after the gate & door are closed, before returning to Home floor. If Gate or Door is open, unit will not Home return.
    Time increment is **minutes**; range is 1-30.

3-2) PARAMETER DESCRIPTION & FUNCTION (continued)

21. **DC Timer:** {default = 15} The time that the 1EL thru 4EL & PD1 thru PD4 outputs remain on, after a completion of a run or door re-open activation. Time increment is **seconds**; range is 0-60. If set at (0) then output will remain on until a call is placed.

- **Note:** The 1EL thru 4EL outputs supply the feed for Electric locks and Car Here lights while the PD1 thru PD4 outputs supply the "Open" signal for power Hoistway Door openers.

22. **Short Floors:** This feature inhibits the high speed run (VF Drum & Hydro) between the floors indicated. Minimum floor to floor allowed for Automatic pushbuttons is 12 inches. Minimum floor to floor allowed for Constant Pressure pushbuttons is 24 inches.

- **Short Floor 1-2:** (Short floor between 1 & 2) Selections are (0) No, (1) Yes.
- **Short Floor 2-3:** (Short floor between 2 & 3) Selections are (0) No, (1) Yes.
- **Short Floor 3-4:** (Short floor between 1 & 2) Selections are (0) No, (1) Yes.

23. **Call Button Fault:** {default = 0} Selections are (1) Yes, (0) No. If "yes", a code is flashed, at the call button when the unit is unable to accept a call. Factory setting (1) Yes. See Section 2-2 for detail on Fault Codes

- **Note:** Enhanced on Software version 1.3. Refer to sec. 5-2 for details.

24. **Re-level shutdown Counter:** (Hydro only) {default = 5} If unit re-levels the number of times set in the counter, during the time period set on the Re-level shutdown Timer, car will return to the bottom terminal floor and shut down. Range is 0-10, (0) disables the function.

25. **Re-level shutdown Timer:** {default = 2} If number of re-levels equal counter setting, before the timer setting expires, car will return to the bottom terminal floor and shut down. Time increment is **minutes**; Range is 0-10.

26. **Auto shut down counter:** {default = 0} If activated, car will shut down when number of runs equals counter setting. Number of runs equals the setting times 10. This feature auto-disables after four activations.

3-3) FAULT FLASH CODES:

All codes that begin with a long flash (2 seconds on) are Call for Service codes. These are problems that the user can not correct. The main purpose of these codes is so a user could convey to you, over the phone, the flash sequence. This may save a trip to the site if it is one of the User codes, or could give you an idea of what parts you may need to take with you, when you go to the site, if it is a call for service code.

- **Call For Service (1):** One long, one short. This code indicates that there is a problem is one of the following areas:

  Overload Trip Run Timer Trip Main Safety Chain open

  Door lock fault Auto Shut Down counter

- **Call For Service (2):** One long, two short. This code indicates that there is a problem is one of the following areas:

  Re-level shutdown Low Pressure Switch

- **Call For Service (3):** One long, three short. This code indicates that there is a problem is one of the following areas:

  Selector Fault Selector Encoding error Position Error

- **User Code (1):** One short. This indicates that the Gate is open, or the In-car stop is in the stop position.

- **User Code (2):** Two short. This indicates that a Door is open.

4-1) TEMPORARY RUN MODE:

The purpose for this mode of operation is to allow the installer to move the platform up or down during the installation process. During this mode of operation safety chains MSC, LPS, GC, HDC and HDL will be disregarded. If the motor overload connected to PT1 and PT2 opens, the platform will not move.

Before the platform can be moved the following electrical connections will need to be made:

- Drive system (hydro or drum) including motor overload
- L1, L2 & N
- SW1 & SW2

Temporary run mode can be initiated in either of the following:

- Hold keys 1,5 and 0 on P-TOOL, then power up
- Insert J10 on Interface PCB, then power up

The platform will travel UP by constant pressure of either of the following:

- “A” key of PTOOL
- While logic board input 4C is tied to REF
- Original Pendant SAFE & UP button

The platform will travel down by constant pressure of either of the following:

- “D” key of PTOOL
- While logic board input 1C is tied to REF
- Original Pendant via SAFE & DOWN button

Note: During Temporary Run Mode, the platform will move at low speed.

To return too normal operation, remove power then power up without the initiating conditions.

5-1) PRE-OPERATIONAL SAFETY CHECKS

This process will confirm that all safety circuits function as expected. The critical LED(s) to observe are RED and located on the left side of the Logic board. These LEDs have the following designators:

UT, LT MSC, GC, HDC and HDL

1. Remove J14 & J16 from Logic board, then power up controller in

   "TEMP RUN" mode with P-Tool
2. Confirm P-Tool displays "TEMPORARY MODE REST", then insert J14
3. Confirm that gate is closed and hoistway doors are closed and locked. The critical LEDs MUST be ON (UT, LT MSC, GC, HDC and HDL).
   - Note: Other LEDs may be ON as well but are disregarded for these tests
4. Cycle each of the following applicable switches and confirm that all critical LEDs to turn OFF when the switch is opened and back ON when the switch is closed: Pit Sw., UFL, LFL, Safety Slack Sw., Car Top Stop.
   - Note: Close all switches and confirm all critical LEDs are ON.
5. Manually unlock a door lock. Result: HDL goes off.
6. Open a Hoistway door. Result HDC goes off; HDL remains off.
7. Open the Gate. Result: GC goes off; HDC and HDL remain off.
8. Close Gate and Open "IN CAR STOP": GC goes off; HDC and HDL remain off.
9. Close "IN CAR STOP" switch, gate and hoistway doors

5-2) TEMPORARY MODE RUNNING TESTS

- Note: To move the elevator with an open Gate and/or Hoistway door, Insert terminal J10 into Interface PCB.

*****WARNING*****
INSURE THAT TERMINAL J10 IS REMOVED AT THE END OF TEMP RUN OPERATIONS

1. Verify car runs in the direction commanded: If car runs in opposite direction, swap any two of three motors leads
2. Confirm LEV Selector is Functioning: Refer to Appendix E for the test procedure
3. Confirm Selector signal sequence: Refer to Appendix C for the required selector sequence. Confirm sequence from lower terminal floor to upper terminal floor in both directions.

5-3) PROGRAM JOB SPECIFIC PARAMETERS

1. Power down controller, remove J14 from Logic board and J10 from Interface board
2. Power up controller and follow instructions of Appendix D
3. After all job specific parameters have been entered:
   a. Clear the LOG
   b. Insert J14 on Logic board
4. Reset Elevator

6-1) IDENTIFYING THE SOFTWARE VERSION:

Periodically we enhance or add features to the operational software. If you call for assistance on a unit, you may be asked to identify the software on your unit.

There are two ways to identify your software:

1) The date stamp on the 40 pin EPROM.
2) Connect the Programming tool, perform a reset by pressing the star key and reading the version that shows on the upper right side of the display. Note, if a ? mark is displayed it is an indication that you have the first version of software. If you have a revised version, you will see a "V" followed by an identifier (1.1, 1.2, 2.1, etc).

6-2) SOFTWARE ENHANCEMENTS:

Version 1.3 Dated November 14, 2005

- **Gate Open Timer:** Range is 0-250 sec. Where "0" will park the gate(s) open.
- **Call But. Fault:** Selections are, 0-NO 1-A 2-U. If "A" is selected ALL codes will be allowed to flash. If "U" is selected only the user codes will be allowed to flash.

Version 2.0 Dated December 3, 2007

- Added parameters: **PreOpening and Sabbath**

Version 2.1 Dated March 25, 2009

Code compliance for gate monitoring. If the hoistway door (HDC) is opened, the gate (GC) must be cycled for the system to accept a call.

7-1) COMMON QUESTIONS:

A. Call button flashes

(Q): I press a button to call the car to my floor, the button flashes but car does not move. Why is the button flashing?

(A): When the car is not allowed to move, which can be for a number of reasons, a fault flash code is displayed at the button pressed. If the flash sequence is one long (2 seconds on) and then followed by a short (1/2 second on) flash or flashes, it indicates that a service representative needs to correct the problem. If the flash sequence does not include the long (2 second on) but only a short flash or flashes, this generally indicates that the user can correct the problem by, making sure the "stop switch in the car is in the run position, shutting the car gate, or shutting a hoistway door.

(Q): I press a button to call the car to my floor, the button lights up but the car does not move, after some time the light in the button turns off and then flashes on once. If I press the button again, the light does not stay on but again flashes on once. Why won't my unit run?

(A): The first time you pressed the button, the call to your floor was being held, waiting for either the car gate or a hoistway door to be closed. The car gate or hoistway door was not closed within the time period set in the parameter field, and the call was then dropped. The single flash of the button light indicates that the car gate circuit is in an open position and needs to be closed in order to allow a run. Check the "Stop" button and make sure it is in the run position and also make sure the gate is closed.

(Q): I press a button to call the car to my floor, the button lights up but the car does not move, after some time the light in the button turns off and then flashes twice. If I press the button again, the light does not stay on but again flashes twice. Why won't my unit run?

(A): The first time you pressed the button, the call to your floor was being held, waiting for either the car gate or a hoistway door to be closed. The car gate or hoistway door was not closed within the time period set in the parameter field, and the call was then dropped. If the two flashes on the button light were short (1/2 second on each), this indicates that the hoistway door is in an open position and needs to be closed in order to allow a run. Make sure all hoistway doors are closed. Note: If the two flashes were one long (2 seconds on) and then one short (1/2 second on), this is not a door open condition and you need to call a service representative.

B. Automatic Car Light

(Q): My customer wants the car lights to turn off sooner. What can I do?

(A): The time can be changed by the Car Light Timer parameter. Use the P-Tool and access the program section, and then change the setting for the "Car Light Timer".

(Q): My customer says the car light never turn off. They can see the light shining under the door.

(A): The number one cause for this condition is that either the car gate is not closed, or the hoistway door is not closed. The light timer does not function until both the car gate and hoistway doors are closed. One other possible cause would be that the AL relay is not functioning. The control uses the N/C contacts of the relay to power the lights, if the relay is functioning correctly then the light could stay on.

C. Miscellaneous

(Q): If we want to add a power gate operator to a unit that was not ordered with one, do we have to buy a new controller or make major modification to the current one?

(A): No, with the 4M2 controls you will not need a new controller nor will there be any major modifications to the existing control. All 4M2 controls have provisions built in for control of two power gate operators and four power door operators. All you need to do is add the power operators, connect the correct wires into the controller and change some parameters (using the P-tool).

(Q): Do I need to put limit switch, pushbutton and interlock wiring in metallic conduit?

(A): Maybe, this would typically be determined by your local building codes. All power supplied to these devices is low voltage (24 VDC). Check with your local authority for determination.

(Q): We had a power loss while trying to go the lower level but the car stopped at the 2nd level. Do we have to get out at the 2nd level or can we ride the car down to the lower level?

(A): Yes, you may ride the car to a lower level. When main power is lost the car goes into "Emergency Lowering Mode" and will stop at the next lower floor that it comes to. The car can then be called or sent to a lower level if all the appropriate safety circuits are made.

(Q): I want to use my elevator but how do I tell if the car is at my level or needs to be called to my level?

(A): In our opinion, the best thing to do is press the call button before pulling on the door. If the car is at your level, the button light will extinguish when the button is released. If the light stays illuminated, then the car is at another floor. We feel this is the best operation because units that utilize electro-mechanical locks may require the pressing of the button to unlock the door.

8-1) FAULT TROUBLESHOOTING

FAULT	Possible Cause	Corrective Action Required
MSC open during run	Pit Switch not being used and required jumper was not installed.	Review electrical diagrams and place jumper between required terminals.
	Pit Switch open	Put Pit switch back to "Run" position and then perform controller "Reset" function.
	Top or Bottom Final Limit switch set too close to terminal landing.	Move car off of Final Limit and adjust cam or switch position if necessary, then perform controller "Reset" function.
	Car top Stop switch opened.	Put Stop switch back to "Run" position and then perform controller "Reset" function.
	Car Slack Rope / Safety switch tripped.	Evaluate the condition and location of the car. **Use proper safety rules when dealing with this situation and never attempt to get under or onto the car unless the unit has been adequately assessed and the proper safety precautions have been taken.** Manually reset the switch and then perform controller "Reset" function.
	Car top mounted Final Limit Sw. (Drum only)	Move car off of Final Limit and adjust switch position if necessary, then perform controller "Reset" function.
GC open during run	In-car stop switch in "Stop" position	Put stop switch to "Run" position.
	Car gate opened during run.	Close car gate.
HDC open during run	Hoistway door contacts opened while coming into or through a floor during run.	Check adjustment of door closer, spring hinges, or latch, to insure proper closing pressure and adjust if necessary.
	Door "Lock" and "Closed" contacts wired in reverse.	Check wiring and correct if necessary. For GAL interlocks, the lower contacts are the "Door Closed" contacts.
HDL open during run (General)	Door lock not locking	Check for binding between keeper and locking member and re-align if necessary.
	Door lock not locking	Interlock too far from back of door panel and keeper does not enter lock far enough, inhibiting the locking member from engaging the keeper. Make necessary adjustments.
	Door lock not locking	Door panel warped and does not allow keeper to extend into the lock far enough. Make necessary adjustments.
	Door locking but no HDL signal to controller.	Check wiring and correct if necessary.
	Door "Lock" and "Closed" contacts wired in reverse.	Check wiring and correct if necessary. For GAL interlocks, the lower contacts are the "Door Closed" contacts.
	If using Electro-Mechanical locks, HDC to HDL jumper missing.	Refer to electrical drawing and verify that required jumper is installed.
HDL open during run when leaving or passing by a floor & car **does not** return to floor level	Position Magnet too long. DZ signal is lost before car comes to rest after losing Position signal.	Shorten Position magnet 1/8 to 1/4 inch until car returns to floor after fault.
Overload Trip Only Single Speed drum units include a manually resettable overload. Overloads on VF Drum and Hydraulic units automatically reset after thermal cool down.	Motor incorrectly wired	Check wiring and correct if necessary then perform controller "Reset" function.
	Line Voltage too low	Measure voltage and if more than 10% below nominal, contact Power Company for correction.
	Unit run with over capacity loading	Reset or allow overload to cool down and then perform controller "Reset" function.
	Incorrect wire size used for power source	Typical wire gauge should be minimum of 10. If longer than normal lengths, from power source to controller, disconnect are required, wire guage may need to be increased.
	Incorrect wire size used to connect motor	Typical wire gauge should be minimum of 12. If longer than normal lengths from controller to motor are necessary, increase wire size to 10 ga.

8-1) FAULT TROUBLESHOOTING

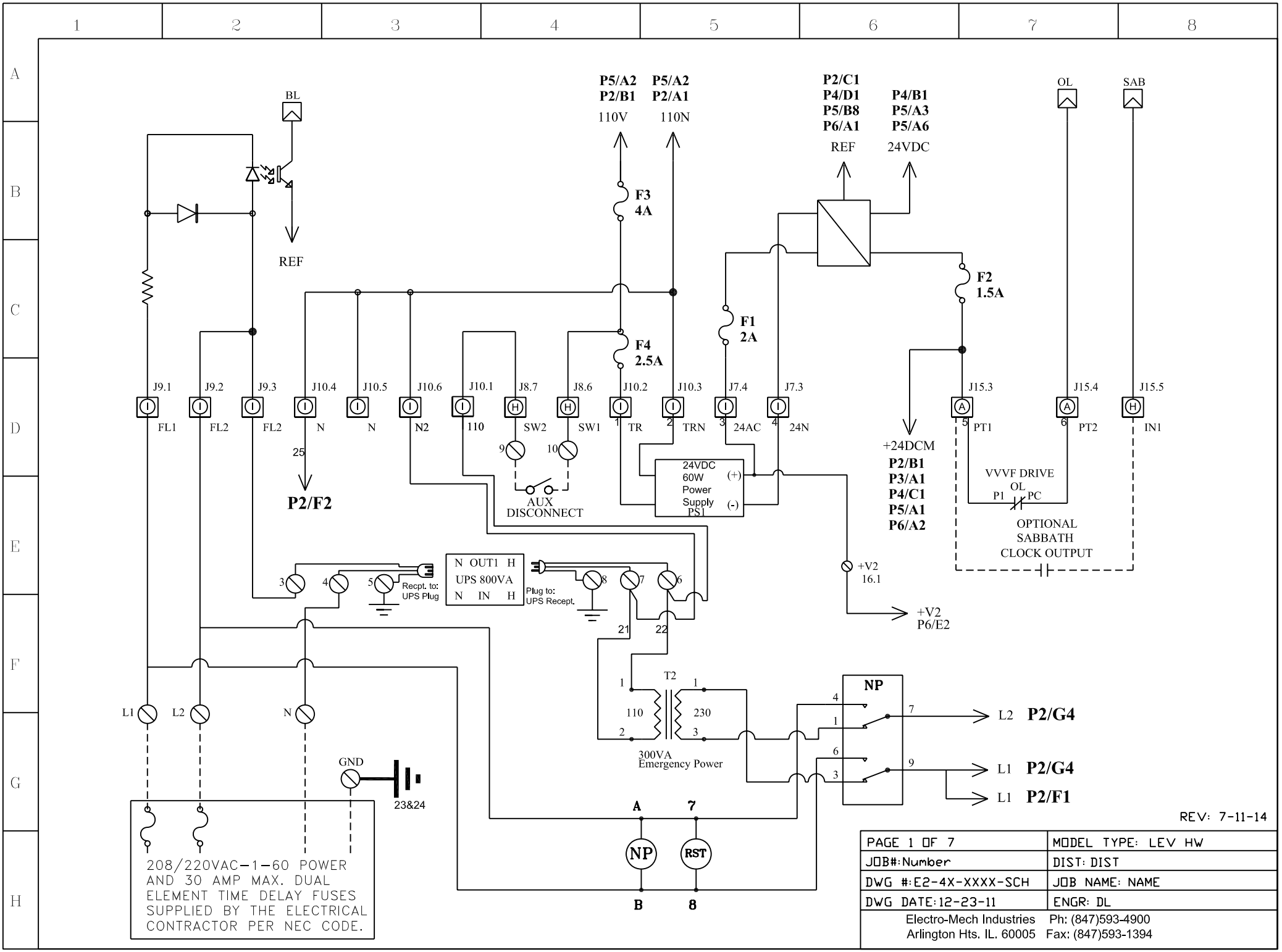
FAULT	Possible Cause	Corrective Action Required
Run Timer Trip General	If attempting to run up, UT input not on, if attempting to run down, LT input not on.	Verify proper inputs are present, if not make necessary changes to correct.
Run Timer Trip VF & Hydro units with 6-16-04 Software & all unit with Software version 1.1	Parameter setting not long enough	Check parameter setting and modify if necessary. See factory setting formula on page 16. (For all Drum units see section 1-3 item 3 note for reset procedure)
	Low oil condition, car can not reach upper floor(s). **Hyraulic units only**.	Check oil level, when car is at the top floor, Motor and pump should be submerged in oil.
Run Timer Trip Single Speed Drum only with 6-16-04 Software	Timer tripped in Power outage or Overload trip lowering mode.	Change run timer parameter setting to (Total feet of travel X 6 plus 5). For all Drum units see section 1-3 item 3 note for reset procedure.
Door Failed to Open This is only for Power Gate applications	Power Gate is not opening, or Gate switch (GC input) failed to de-energize within 3 seconds after the Gate Open signal was given.	Verify that the Power switch to the Gate operator is in the ON position.
		Verify that the traveling cable connections are correct and that the Gate open signal is reaching the operator.
		If the gate is opening; Verfiy that there are no jumpers jumping out the GC circuit.
Door Failed to Close This is only for Power Gate applications	Gate switch (GC input) failed to energize within 10 seconds after the Gate Open signal was de-energized.	Verify gate is traveling fast enough to get closed within 10 seconds. If not, increase High speed on the gate operator to insure gate can close in less than 10 seconds.
	Gate coupling magnet detaching from gate.	Verify that gate is closing and does not detach from coupling magnet. Check for binding in gate track. Also verify that the coupling magnet is able to slightly rotate about it's mounting point.
	Gate switch out of adjustment and not sensing that the gate is in the closed position.	Adjust gate switch.
	Gate is not closed completely when close sequence stops.	Adjust gate closed switches on gate operator to allow the gate to close further.
Gate Switch Bypass	During 5 consecutive runs a Hoistway door was opened and closed, without the gate being opened and closed.	Check gate circuit for jumpers.
		Check gate switch for out of adjustment condition along with a mechanical tie which would keep the switch from opening.
Door Switch Bypass 6-16-04 Software only	Jumper wire between GC & HDC	Check for jumper and remove if found
	During 5 consecutive runs the car gate was left opened when user exited the car. when this happens, the system only senses that the hoistway door was opened and closed at the same time that the car gate was openened and closed. This situation will cause a door switch bypass fault.	Instruct the user to close the car gate when exiting the car. This will eliminate the generation of the fault.
Selector Fault	Selector signals not received in correct sequence which could be caused by a position magnet lower or higher than the leveling magnet.	Verify that the top and bottom edges of the position magnets are at least 1" from the end of the leveling magnet. Adjust or trim if necessary.
	Selector signals not received in correct sequence which could be caused by a sensor not turning "off"	Verify that a signal is not "locked on". Replace Reader if necessary.
	Selector signals not received in correct sequence which could be caused by a sensor not turning "on"	Verify that all signals are functioning at each level. Replace Reader if necessary.

8-1) FAULT TROUBLESHOOTING

FAULT	Possible Cause	Corrective Action Required
Position Error	Magnets grossly out of position	Check position and adjust if needed
	Two or more postion signals on at the same time	Verify that a signal is not "locked on". Replace Reader if necessary.
Encoding Error	Position signal does not equal selector count. This would be caused by position magnet wrong polarity or in wrong lane.	Verify Position magnets are in correct lane and that the polarity is correct.
Re-Level Shutdown (Roped Hydraulic only)	Piston packing leaking	Check for excessive oil on piston, oil leaking down cylinder and replace packing if necessary.
	"Delay Up Stop" parameter not correct	Check parameter setting. Setting should be (50)
	"Relevel shutdown" Counter not set a factory default.	Check parameter setting. Setting should be (5)
	"Relevel shutdown" Timer not set a factory default.	Check parameter setting. Setting should be (2)
	Control Valve contaiminated and leaking	Refer to Valve section in the Installation Manual for checkout procedures.

9-1) PARAMETER SETTINGS

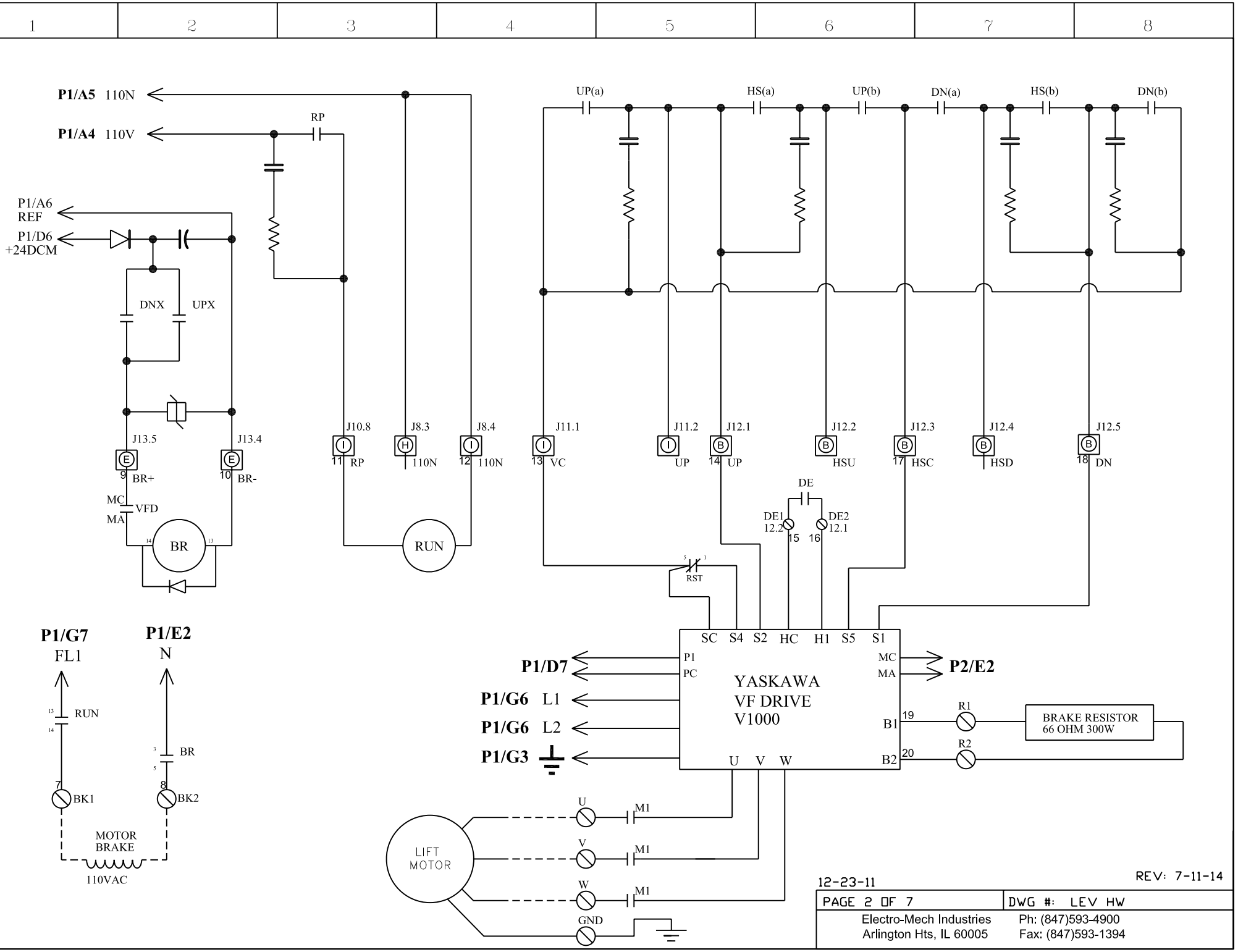
Parameter	Board Default	Job Settings	Job Settings
Password:	12345		
Number of Floors	2		
Single Automatic PB	YES		
Drive System	DRUM		
Fixed Cam	YES		
Delay Up Stop	0		
Run Timer	90		
Car light Timer	5		
Non-Interference Timer	10		
Car Call Cancel Timer	10		
Automatic (Power) Gate	NO		
Floor 1 Gate	1		
Floor 2 Gate	1		
Floor 3 Gate	1		
Floor 4 Gate	1		
Gate Open Timer	15		
Gate Re-open Timer	10		
Door Timer Cancel	YES		
Homing Floor	0		
Homing Timer	5		
DC Timer	15		
Short Floor 1-2	NO		
Short Floor 2-3	NO		
Short Floor 3-4	NO		
Call Button Fault	NO		
Re-level shutdown Counter	5		
Re-level shutdown Timer	2		
Auto shut down counter	0		



REV: 7-11-14

PAGE 1 OF 7	MODEL TYPE: LEV HW
JOB#:Number	DIST: DIST
DWG #:E2-4X-XXXX-SCH	JOB NAME: NAME
DWG DATE:12-23-11	ENGR: DL

Electro-Mech Industries Ph: (847)593-4900
Arlington Hts. IL. 60005 Fax: (847)593-1394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P1/A4 110V
RP
P1/A6
REF
P1/D6
+24DCM
DNX
UPX
J13.5
J13.4
9 BR+
10 BR-
MC
VFD
MA
BR
J10.8
11 RP
J8.3
110N
J8.4
12 110N
RUN
UP(a)
HS(a)
UP(b)
DN(a)
HS(b)
DN(b)
J11.1
13 VC
J11.2
UP
J12.1
14 UP
J12.2
HSU
J12.3
17 HSC
J12.4
HSD
J12.5
18 DN
DE
DE1
12.2
DE2
12.1
15
16
RST
SC S4 S2 HC H1 S5 S1
P1/D7
P1
PC
P1/G6 L1
P1/G6 L2
P1/G3
YASKAWA
VF DRIVE
V1000
MC
MA
P2/E2
B1
B2
19
20
R1
R2
BRAKE RESISTOR
66 OHM 300W
U V W
P1/G7
FL1
P1/E2
N
RUN
BR
BK1
BK2
MOTOR
BRAKE
110VAC
LIFT
MOTOR
U
V
W
GND
M1
M1
M1
12-23-11
REV: 7-11-14
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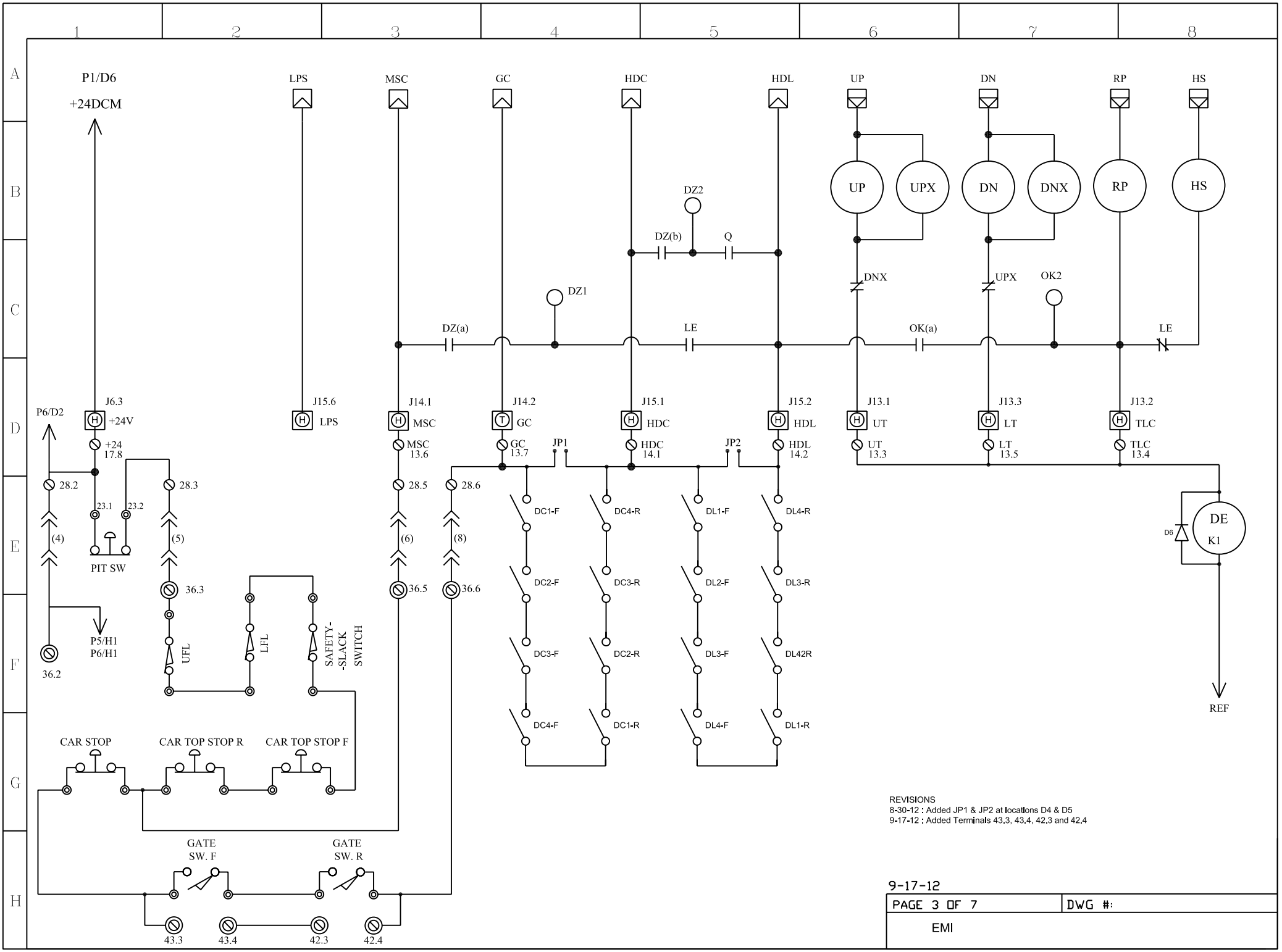
DWG #: LEV HW
Electro-Mech Industries
Arlington Hts, IL 60005
Ph: (847)593-4900
Fax: (847)593-1394



REVISIONS
8-30-12 : Added JP1 & JP2 at locations D4 & D5
9-17-12 : Added Terminals 43.3, 43.4, 42.3 and 42.4

9-17-12

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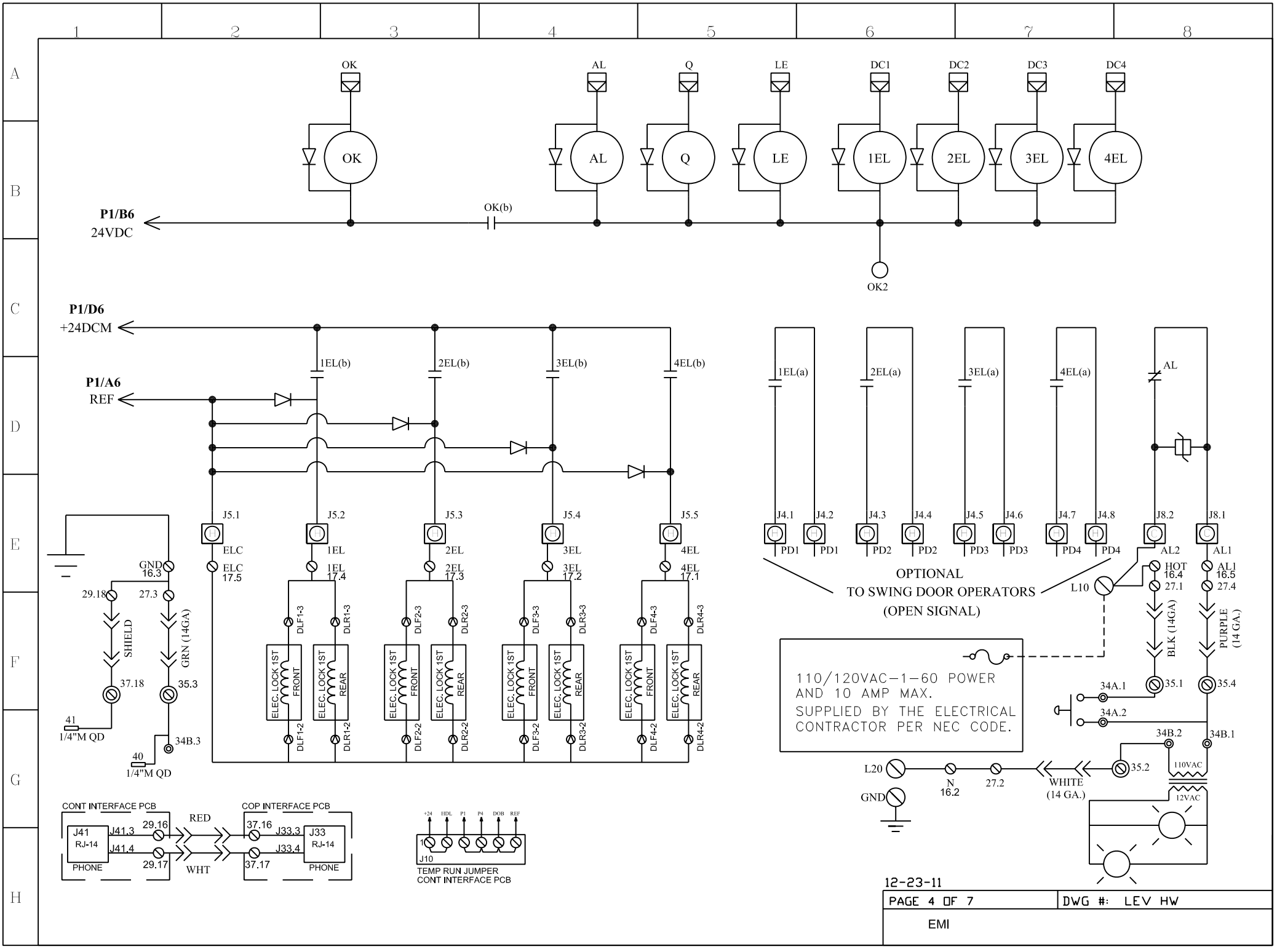
OK
AL
Q
LE
DC1
DC2
DC3
DC4
OK
AL
Q
LE
1EL
2EL
3EL
4EL
P1/B6
24VDC
OK(b)
OK2
P1/D6
+24DCM
P1/A6
REF
1EL(b)
2EL(b)
3EL(b)
4EL(b)
1EL(a)
2EL(a)
3EL(a)
4EL(a)
AL
J5.1
J5.2
J5.3
J5.4
J5.5
ELC
ELC
17.5
1EL
1EL
17.4
2EL
2EL
17.3
3EL
3EL
17.2
4EL
4EL
17.1
J4.1
J4.2
J4.3
J4.4
J4.5
J4.6
J4.7
J4.8
J8.2
J8.1
PD1
PD1
PD2
PD2
PD3
PD3
PD4
PD4
AL2
AL1
OPTIONAL
TO SWING DOOR OPERATORS
(OPEN SIGNAL)
L10
HOT
16.4
27.1
ALI
16.5
27.4
BLK (14GA)
PURPLE
(14 GA.)
GND
16.3
29.18
27.3
SHIELD
GRN (14GA)
37.18
35.3
41
1/4"M QD
34B.3
40
1/4"M QD
DLF1-3
DLR1-3
DLF2-3
DLR2-3
DLF3-3
DLR3-3
DLF4-3
DLR4-3
ELEC. LOCK 1ST
FRONT
REAR
DLF1-2
DLR1-2
DLF2-2
DLR2-2
DLF3-2
DLR3-2
DLF4-2
DLR4-2
110/120VAC-1-60 POWER
AND 10 AMP MAX.
SUPPLIED BY THE ELECTRICAL
CONTRACTOR PER NEC CODE.
34A.1
34A.2
35.1
35.4
34B.2
34B.1
L20
N
16.2
27.2
WHITE
(14 GA.)
35.2
110VAC
GND
12VAC
CONT INTERFACE PCB
J41
RJ-14
PHONE
J41.3
J41.4
29.16
29.17
RED
WHT
COP INTERFACE PCB
37.16
37.17
J33.3
J33.4
J33
RJ-14
PHONE
+24
HDL
P1
P4
DOB
REF
J10
TEMP RUN JUMPER
CONT INTERFACE PCB
12-23-11
PAGE 4 OF 7
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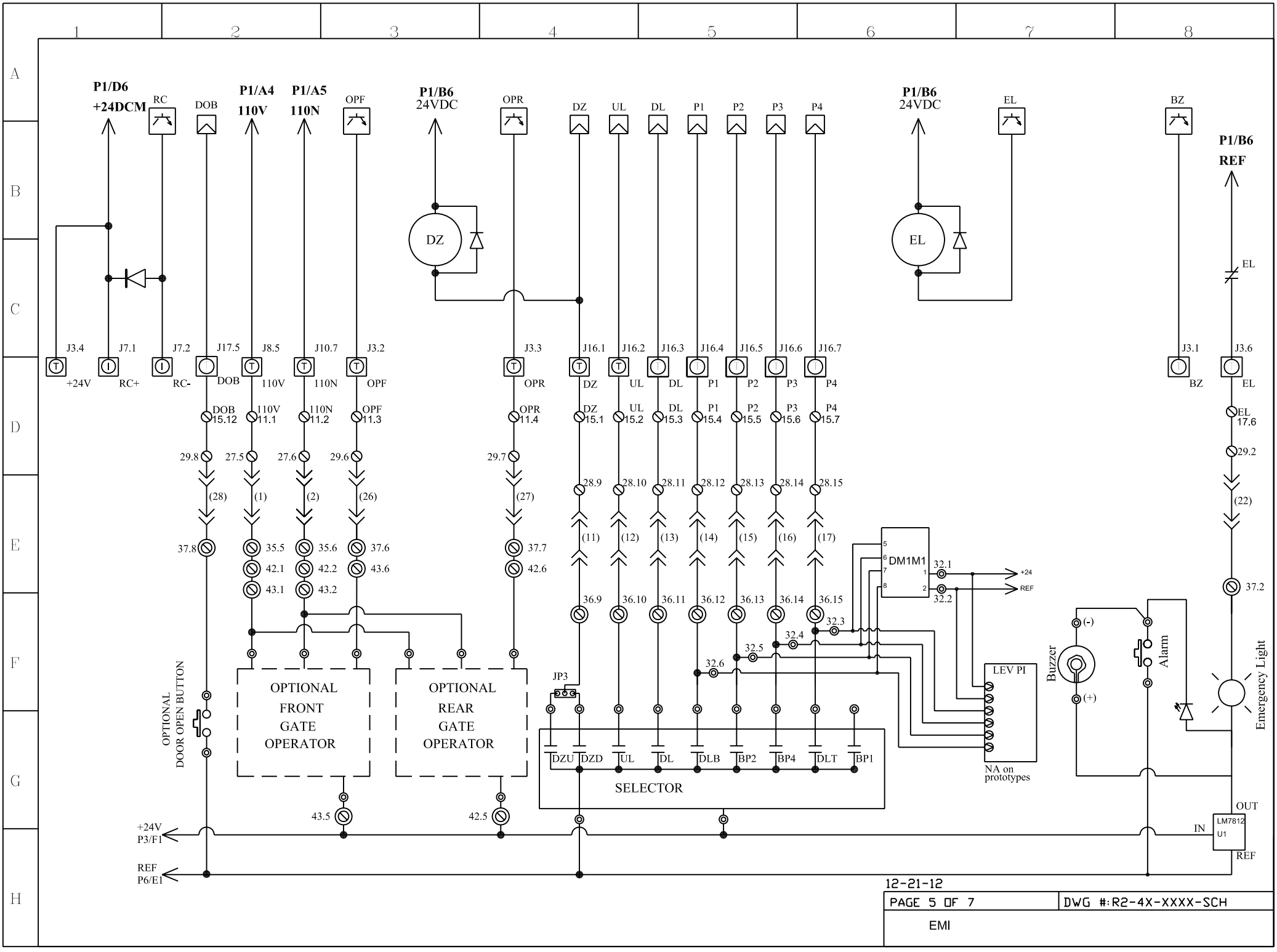
P1/D6
+24DCM
RC
DOB
P1/A4
110V
P1/A5
110N
OPF
P1/B6
24VDC
OPR
DZ
UL
DL
P1
P2
P3
P4
P1/B6
24VDC
EL
BZ
P1/B6
REF
J3.4
J7.1
J7.2
J17.5
J8.5
J10.7
J3.2
J3.3
J16.1
J16.2
J16.3
J16.4
J16.5
J16.6
J16.7
J3.1
J3.6
+24V
RC+
RC-
DOB
110V
110N
OPF
OPR
DZ
UL
DL
P1
P2
P3
P4
BZ
EL
DOB 15.12
110V 11.1
110N 11.2
OPF 11.3
OPR 11.4
DZ 15.1
UL 15.2
DL 15.3
P1 15.4
P2 15.5
P3 15.6
P4 15.7
EL 17.6
29.8
27.5
27.6
29.6
29.7
28.9
28.10
28.11
28.12
28.13
28.14
28.15
29.2
(28)
(1)
(2)
(26)
(27)
(11)
(12)
(13)
(14)
(15)
(16)
(17)
(22)
37.8
35.5
42.1
43.1
35.6
42.2
43.2
37.6
43.6
37.7
42.6
36.9
36.10
36.11
36.12
36.13
36.14
36.15
37.2
DM1M1
32.1
32.2
+24
REF
32.3
32.4
32.5
32.6
JP3
LEV PI
NA on prototypes
Buzzer
(-)
(+)
Alarm
Emergency Light
OPTIONAL DOOR OPEN BUTTON
OPTIONAL FRONT GATE OPERATOR
OPTIONAL REAR GATE OPERATOR
DZU
DZD
UL
DL
DLB
BP2
BP4
DLT
BP1
SELECTOR
43.5
42.5
OUT
IN
LM7812
U1
REF
+24V
P3/F1
REF
P6/E1
12-21-12
PAGE 5 OF 7
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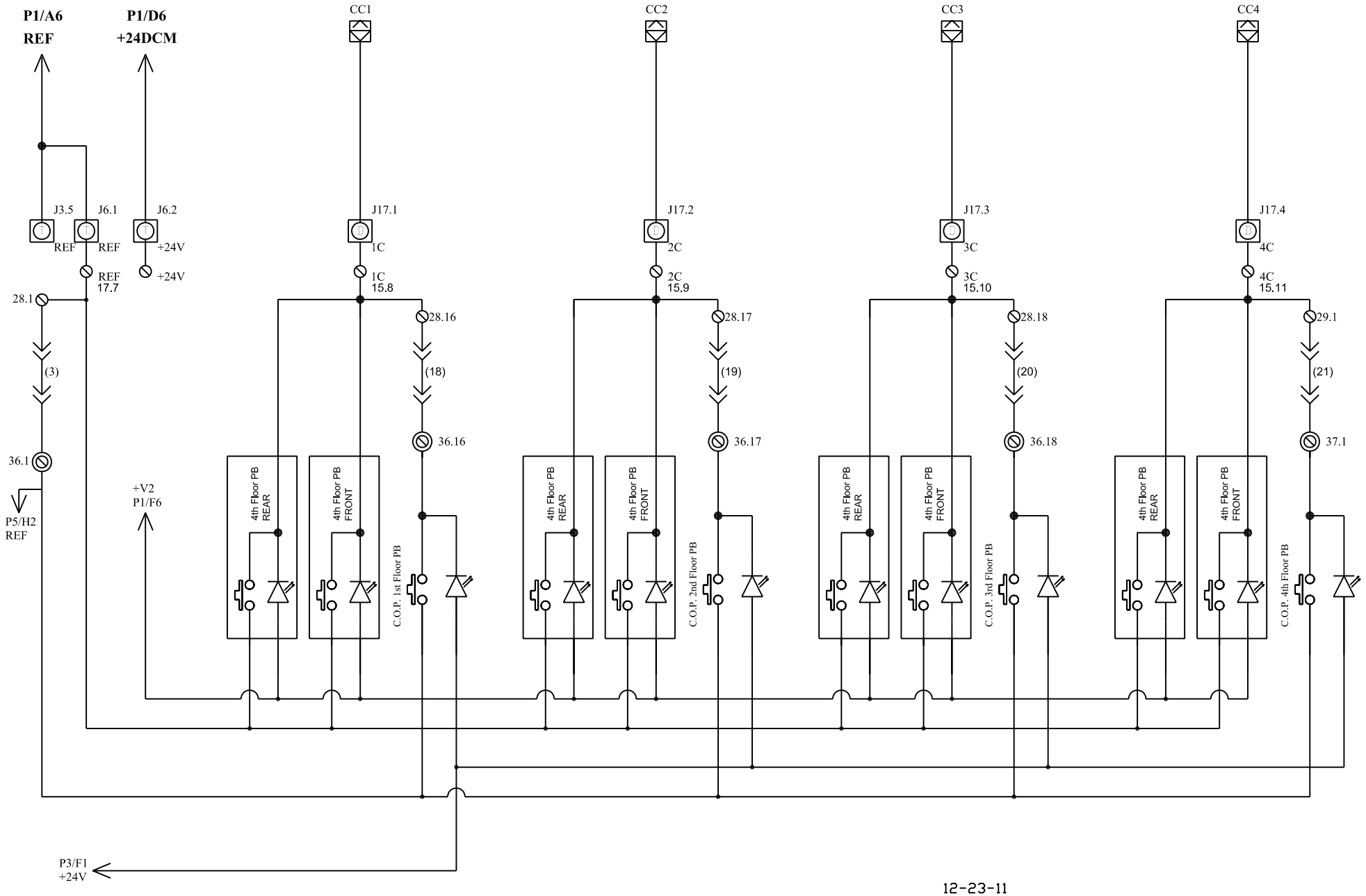

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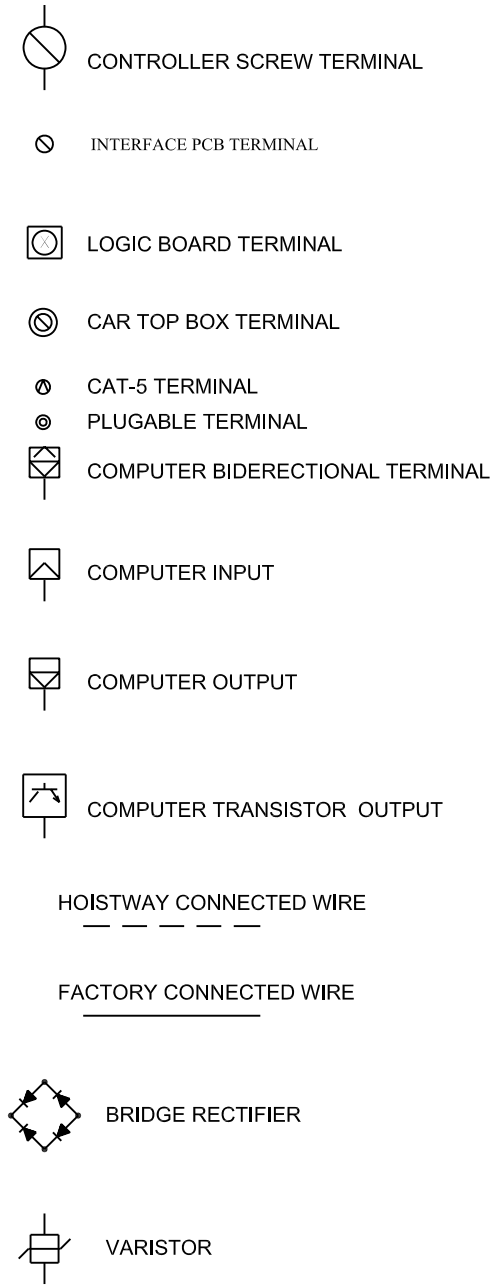

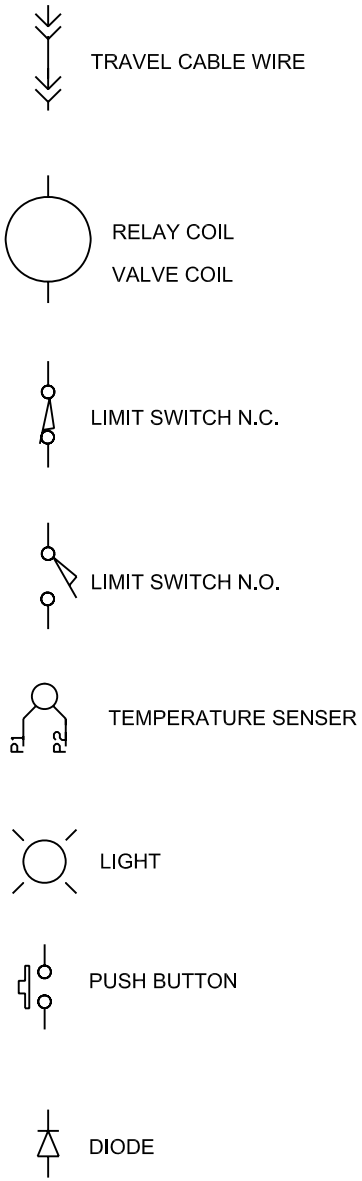

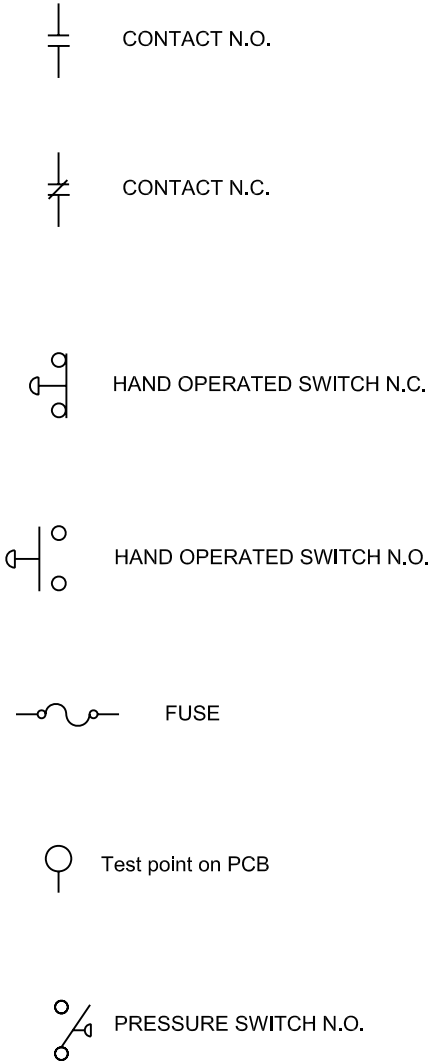

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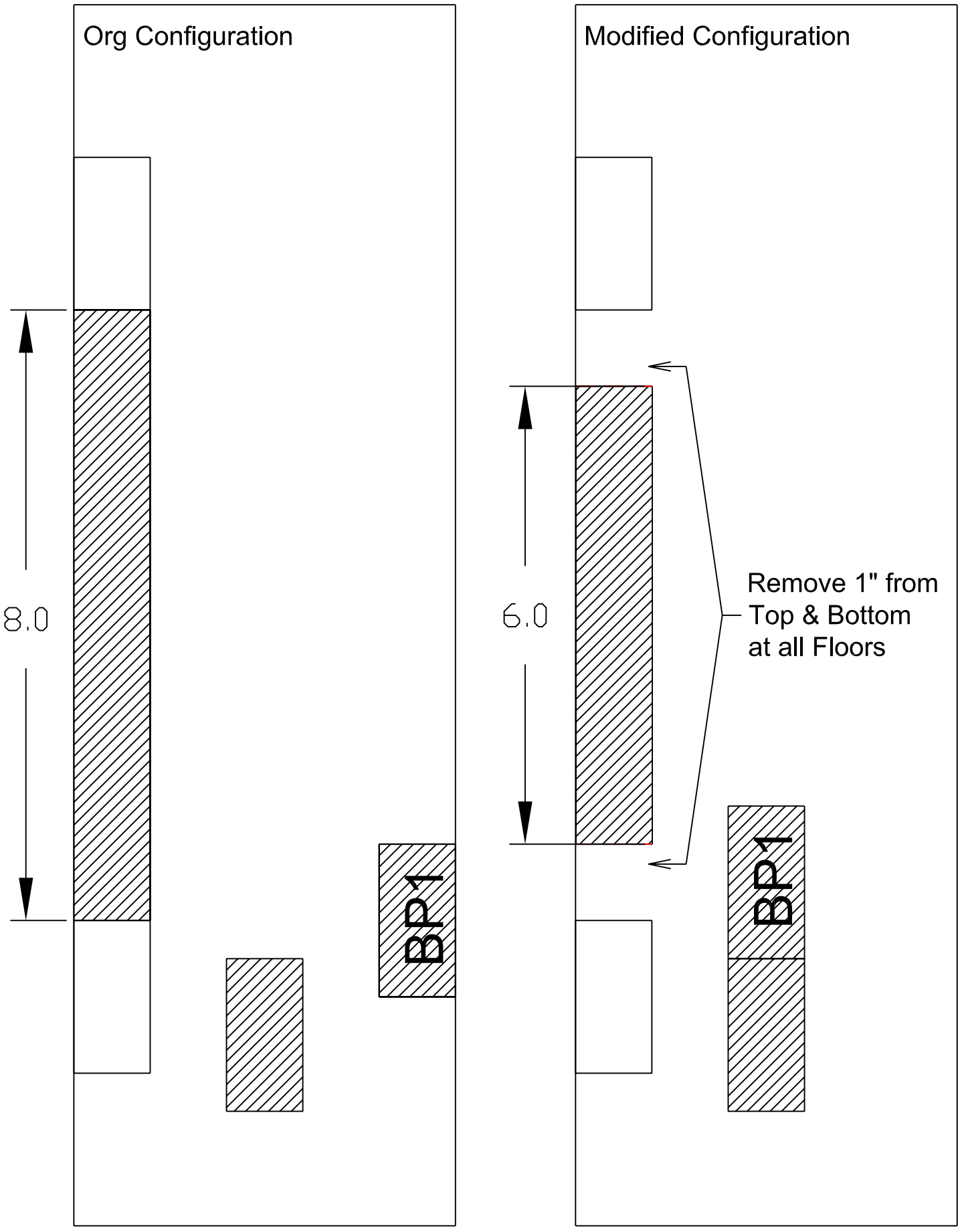
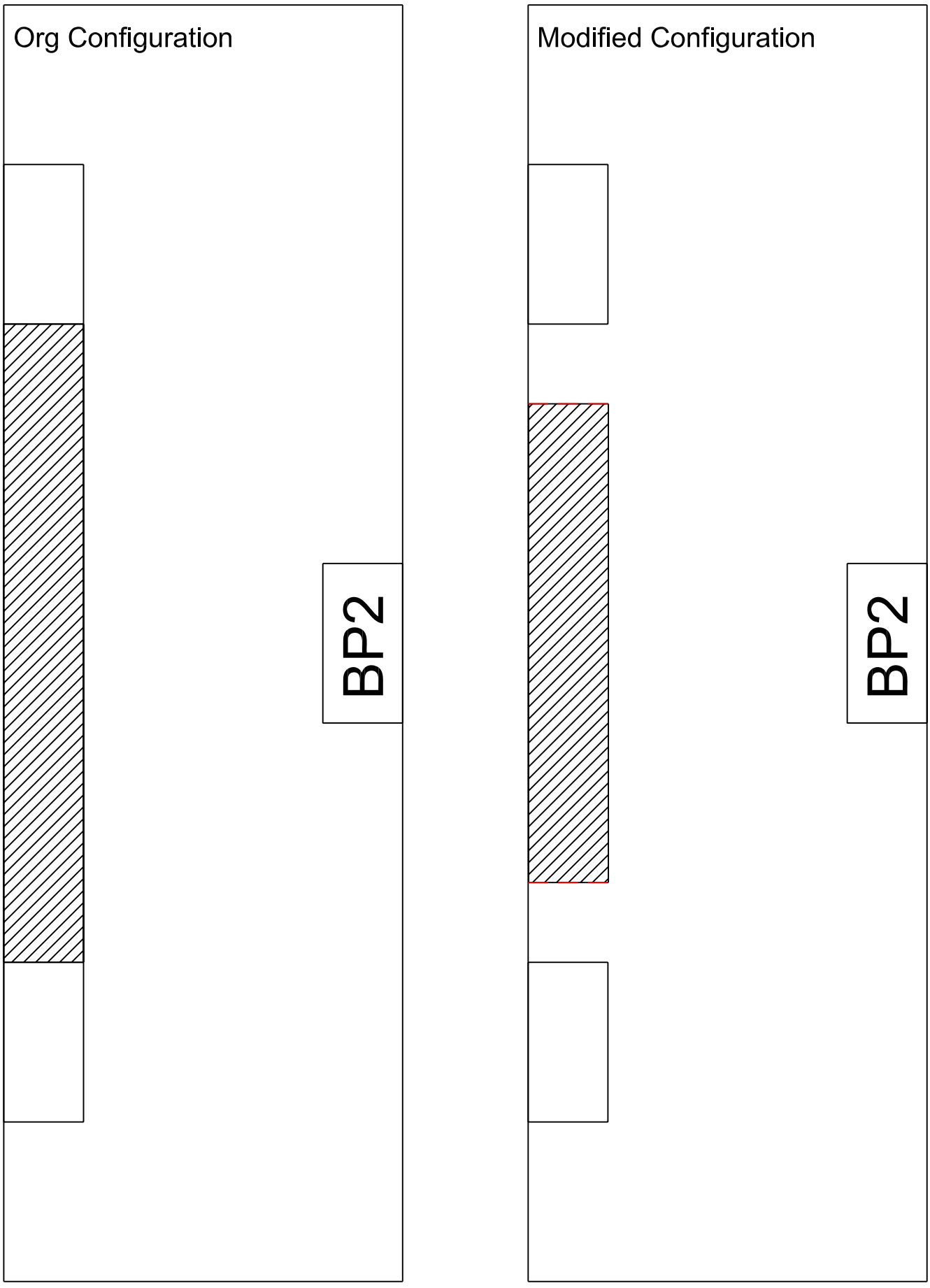
FLOOR 1


Org Configuration
8.0
BP1
Modified Configuration
6.0
Remove 1" from
Top & Bottom
at all Floors
BP1

FLOOR 2 as INT (3 STOP)



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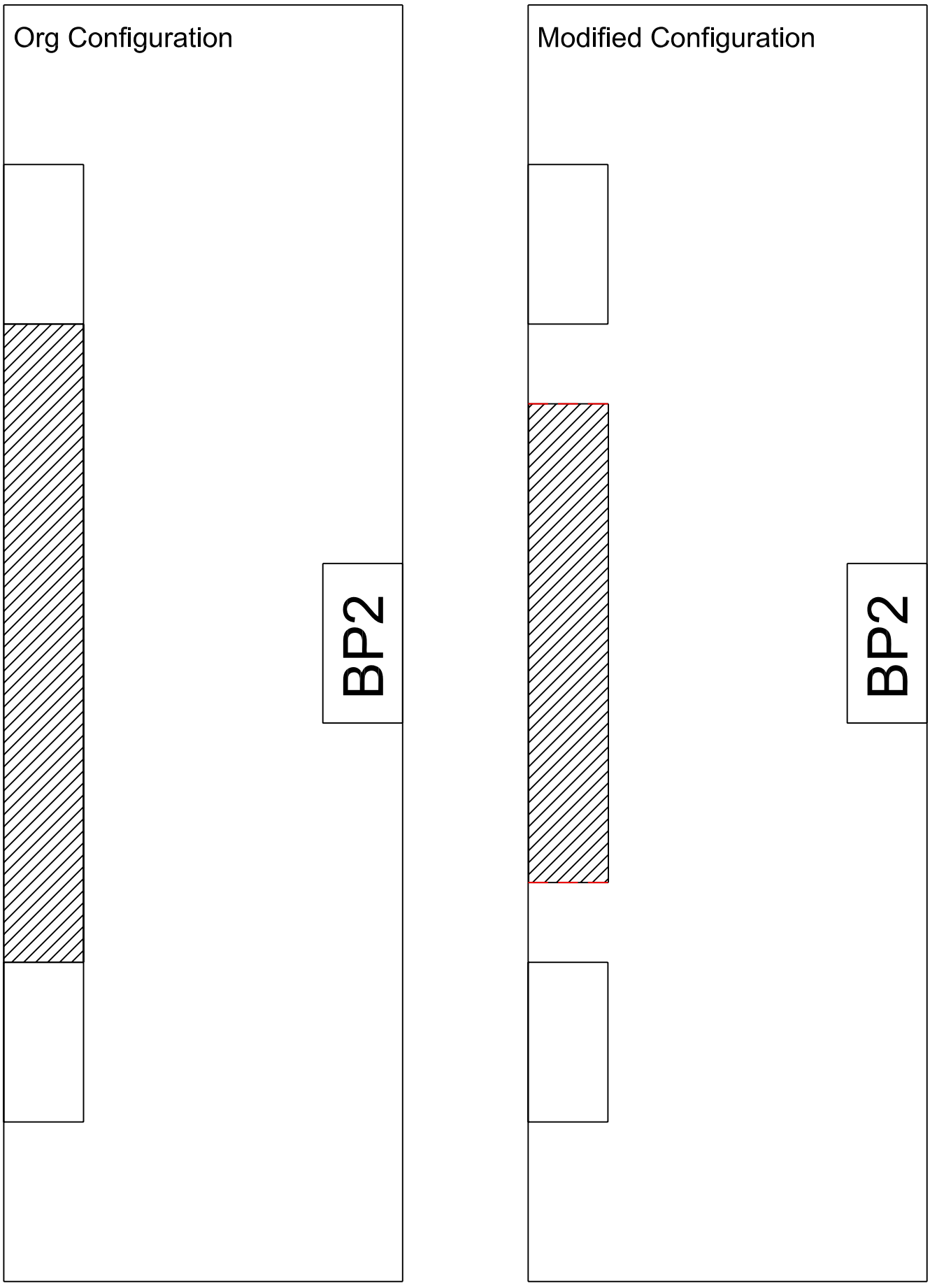
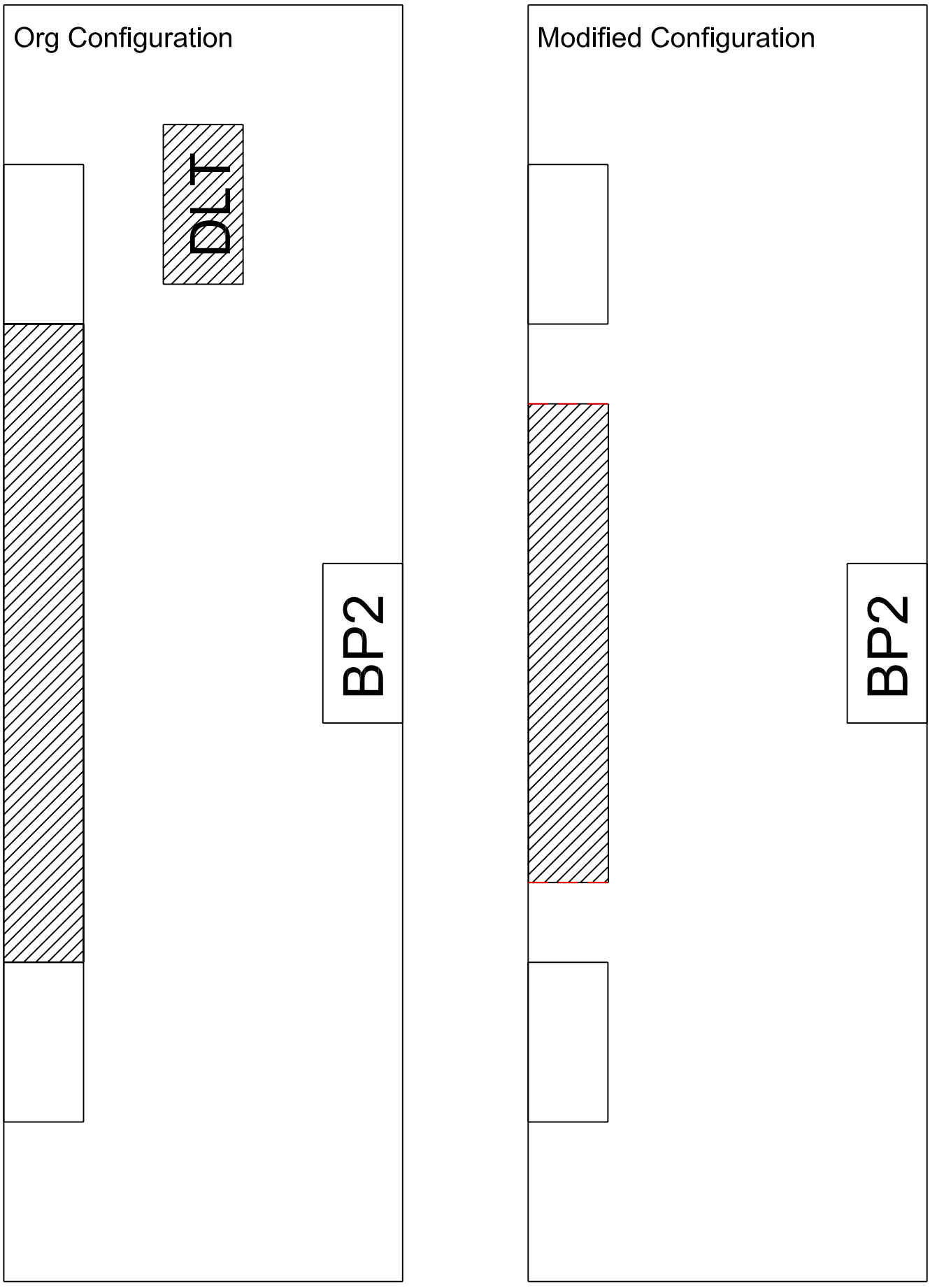
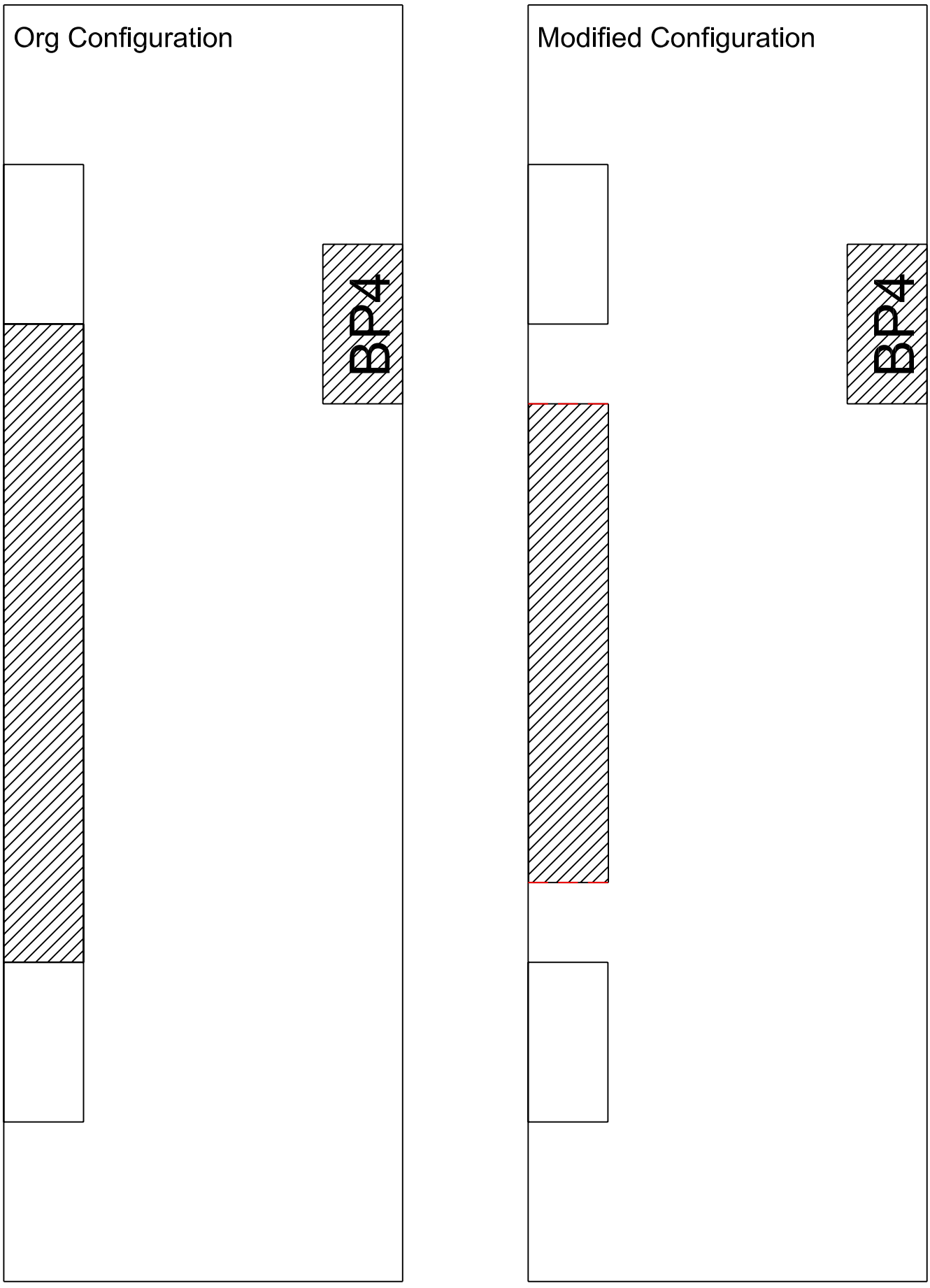


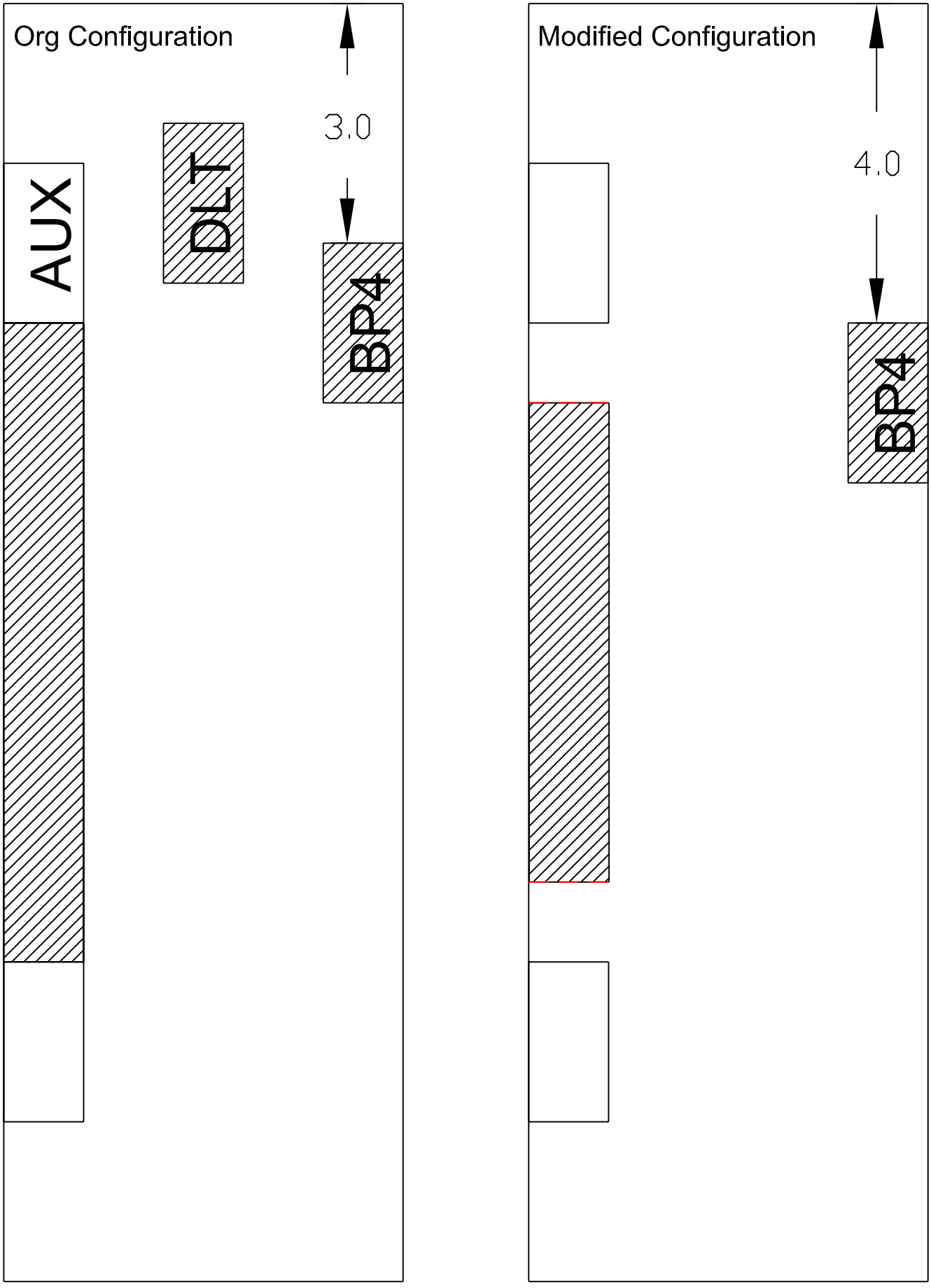
FLOOR 2 as UTF



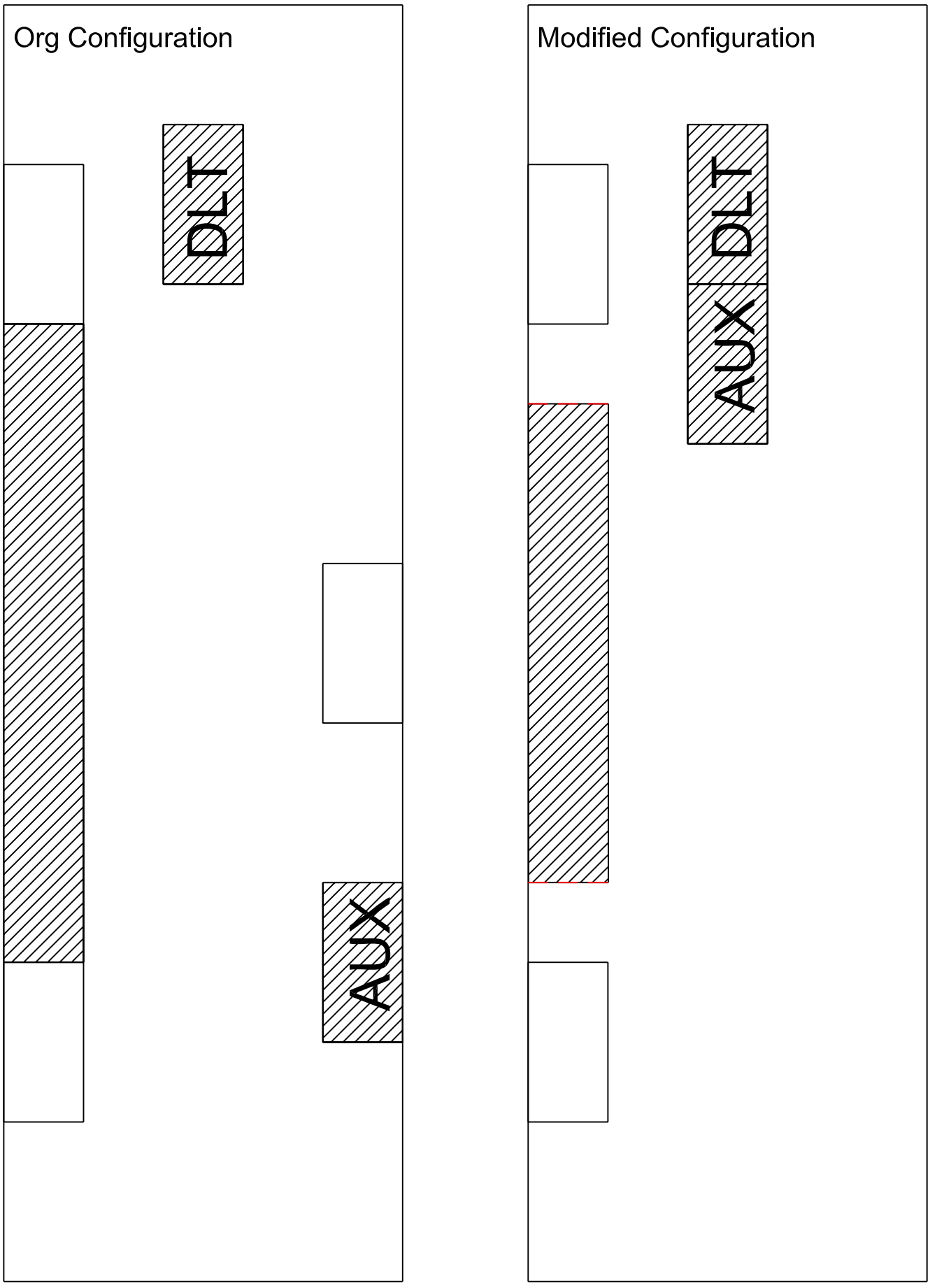
FLOOR 3 as INT (4 STOP)



FLOOR 3 as UTF



FLOOR 4 as UTF



Appendix C

Required Selector Signals
Plug & Play Retrofit Controller

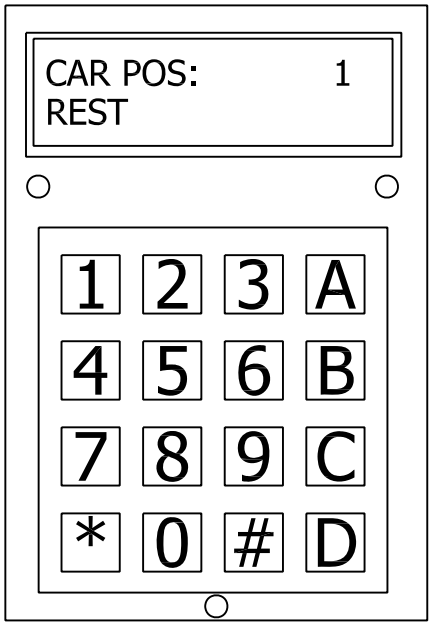
RUNNING UP							
CAR LOCATION	**DZ**	**UL**	**DL**	**P1**	**P2**	**P3**	**P4**
@ FL 1	X			X			
	X	O	X	X			
	X		X	O			
	O		X				
ALL OFF			O				
		X					
	X	X					
	X	X			X		
@ FL2	X				X		
	X	O	X		X		
	X		X		O		
	O		X				
ALL OFF			O				
		X					
	X	X					
	X	X				X	
@ FL 3	X					X	
	X	O	X			X	
	X		X			O	
	O		X				
ALL OFF			O				
		X					
	X	X					
	X	X					X
	X	X					X

X= LED ON
O= LED HAS TURNED OFF

RUNNING DOWN							
CAR LOCATION	**DZ**	**UL**	**DL**	**P1**	**P2**	**P3**	**P4**
@ FL 4	X						X
	X	X	O				X
	X	X					O
	O	X					
ALL OFF		O					
			X				
	X		X				
	X		X			X	
@ FL 3	X					X	
	X	X	O			X	
	X	X				O	
	O	X					
ALL OFF		O					
			X				
	X		X				
	X		X		X		
@ FL 2	X				X		
	X	X	O		X		
	X	X			O		
	O	X					
ALL OFF		O					
			X				
	X		X				
	X		X	X			
@ FL 1	X			X			

X= LED ON
O= LED HAS TURNED OFF

PROGRAMMING TOOL
MHTAL LOGIC BOARD
Unified Software v2.2



NORMAL DISPLAY:
TOP LINE = CAR POSITION
BOTTOM LINE = CAR STATUS

HOT KEY FUNCTIONS:
(*) - RESET
(A) - VIEW MENU

MENU OPTIONS:
1-NORMAL: DISPLAYS THE CARS' POSITION AND STATUS
2-PROGRAM: ALLOWS YOU TO EDIT SYSTEM PARAMETERS
3-LOG: VIEW THE LAST 20 EVENTS
4-COUNT: THREE COUNTERS ARE PROVIDED. TOTAL, TRIP AND RE-LEVEL

A DETAILED DESCRIPTION OF EACH MENU OPTION IS PROVIDED

PROGRAMMING v2.2 (1 of 3)

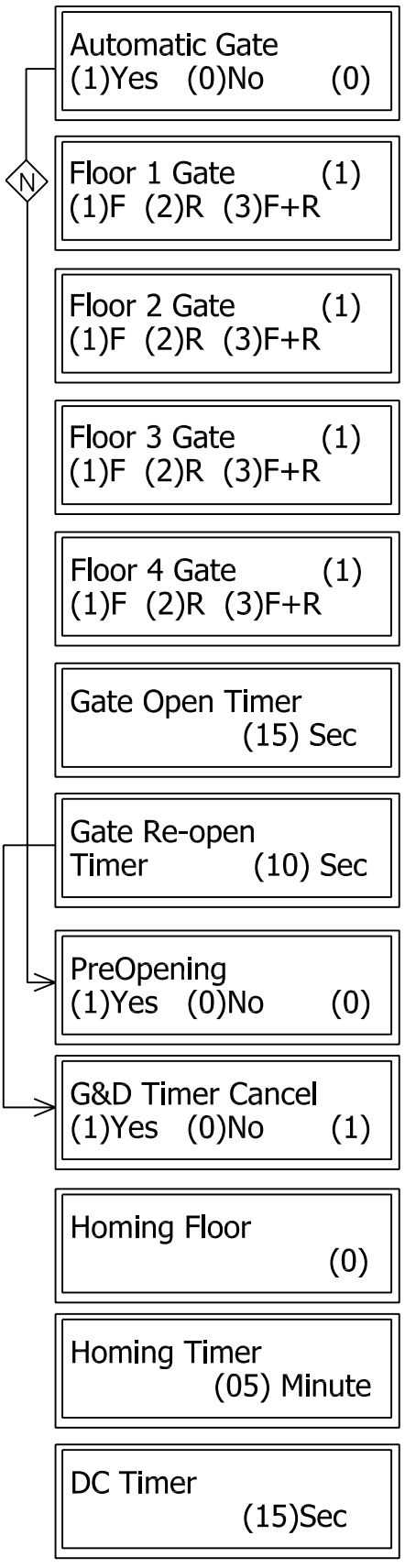
ONCE IN PRORAMMING MODE:

TO MAKE A CHANGE PRESS THE KEY FOR THE DESIRED NUMBER AND PRESS THE (#) KEY TO ACCEPT THE CHANGE.

(A) TO RETUN TO THE MAIN MENU
(B) TO SCROLL UP
(C) TO SCROLL DOWN
(D) TO CLEAR THE CURRENT VALUE.
(#) TO ACCEPT THE CHANGE
(*) TO PERFORM A RESET

CAR POS: 1 REST	PRESS (A) TO VIEW THE MENU
NORM (1) PROG (2) LOG (3) COUNTER (4)	PRESS (2) TO VIEW OR CHANGE PROGRAMMING
Password Then # Prog:	TYPE IN THE PASSWORD THEN PRESS THE (#) KEY FACTORY DEFAULT: 1,2,3,4,5
Number of Floors (2)	TYPE IN THE DESIRED NUMBER OF FLOORS AND PRESS # (ADJUSTABLE FROM 2 - 4)
Automatic PB (0)No (1)Yes (1)	SELECT NO IF CONSTANT PRESSURE OPERATION IS DESIRED.
Drive System (1) (0)Drum (1)Hydro	SELECT DRIVE SYSTEM AND PRESS # IF DRUM IS SELECTED, RE-LEVELING IS DISABLED
Fixed Cam (0) (0)No (1)Yes	SELECT NO AND PRESS # IF ELECTRO MAGNETIC INTERLOCKS ARE USED OR THE INTERLOCK CAM IS A RETIRING CAM
Delay Up Stop X 0.01sec (000)	TYPE IN THE TIME AND PRESS # TO SET THE TIME THAT THE MOTOR WILL CONTINUE TO RUN AFTER "UL" DROPS OUT. ALLOWS CAR TO STOP HIGHER IN THE DEAD ZONE. (ADJUSTABLE 0-200 X10ms | 000 = DISABLED)
Run Timer (090) SEC	TYPE IN TIME AND PRESS # TO SET THE MAXIMUM RUN TIME (ADJUSTABLE FROM 30 - 180 SECONDS)
Car Light Timer (05)Minute	TYPE IN THE TIME AND PRESS # TO SET THE TIME THE CAR LIGHT SHALL REMAIN ON AFTER THE COMPLETION OF A CALL (1-10 MINUTES)
Non-interference Timer (02) Sec	TYPE IN THE TIME AND PRESS # TO SET THE TIME BEFORE A NEW CALL CAN BE ACCEPTED (2-60 SEC)
Car Call Cancel Timer (10) Sec	TYPE IN THE TIME AND PRESS # TO SET THE TIME AFTER WHICH THE CALL WILL BE DROPED IF THE CAR IS UNABLE TO RESPOND (ADJUSTABLE 0 - 60 SECONDS)

PROGRAMMING v2.2 (2 of 3)



SELECT YES AND PRESS # IF YOU ARE USING AUTOMATIC GATE OPERATOR(S)

TYPE IN THE NUMBER REPRESENTING THE FLOOR 1 GATE ORIANTATION AND PRESS #

TYPE IN THE NUMBER REPRESENTING THE FLOOR 2 GATE ORIANTATION AND PRESS #

TYPE IN THE NUMBER REPRESENTING THE FLOOR 3 GATE ORIANTATION AND PRESS #

TYPE IN THE NUMBER REPRESENTING THE FLOOR 4 GATE ORIANTATION AND PRESS #

TYPE IN THE TIME AND PRESS # TO SET THE TIME THE GATE(S) REMAIN OPEN UPON COMPLETION OF A CALL
(ADJUSTABLE: 5-60 SECONDS | 0 = PARKS GATE OPEN)

TYPE IN THE TIME AND PRESS # TO SET THE TIME FOR THE GATE(S) TO HOLD OPEN IN RESPONSE TO A RE-OPEN COMMAND OR A CALL FROM THE SAME FLOOR
(ADJUSTABLE 5-60 SECONDS)

IF YOU SELECT YES AND PRESS #, THE CAR WILL COMPLETE THE CALL WITH THE GATE OPEN, ONLY IF THE CAR IS WITHIN THE DESTINATION LANDING ZONE (DZ) AND POSITIVE FLOOR ENCODING IS ESTABLISHED (PX)

SELECT YES AND PRESS # TO CANCEL GATE/DOOR TIMERS WHEN A CALL IN ENTERED

TYPE IN THE FLOOR AND PRESS # TO SET THE HOME FLOOR
(ADJUSTABLE FROM 0 - 4 | 0 = DISABLED)

TYPE IN THE TIME AND PRESS # TO SET THE TIME BEFORE THE CAR SHOULD HOME
(ADJUSTABLE FROM 01 - 30 MINUTES)

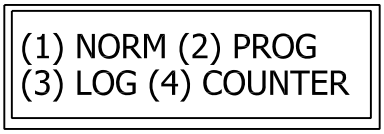
TYPE IN THE TIME AND PRESS # TO SET TIME THE SWING DOOR OPERATOR OUTPUT SHALL REMAIN ACTIVE AFTER GATE STARTS TO CLOSE
(ADJUSTABLE 0-60 SEC | 00 = OUTPUT REMAINS ACTIVE UNTIL A CALL IS PLACED)

PROGRAMMING v2.2 (3 of 3)

Short Floors 1/2 (0)No (1)Yes (0)	SELECT YES AND PRESS # TO INHIBIT HIGH SPEED IN BOTH DIRECTIONS WHEN RUNNING BETWEEN FLOORS 1 TO 2 MIN FLOOR DISTANCE IS 12" FOR APB AND 24" FOR CP
Short Floors 2/3 (0)No (1)Yes (0)	SELECT YES AND PRESS # TO INHIBIT HIGH SPEED IN BOTH DIRECTIONS WHEN RUNNING BETWEEN FLOORS 2 TO 3 MIN FLOOR DISTANCE IS 12" FOR APB AND 24" FOR CP
Short Floors 3/4 (0)No (1)Yes (0)	SELECT YES AND PRESS # TO INHIBIT HIGH SPEED IN BOTH DIRECTIONS WHEN RUNNING BETWEEN FLOORS 3 TO 4 MIN FLOOR DISTANCE IS 12" FOR APB AND 24" FOR CP
Call But. Fault 0-No 1-A 2-U (0)	No: WILL DISABLE THIS FEATURE A: WILL FLASH ALL CODES TO THE CALL BUTTON LIGHTS U: WILL FLASH ONLY THOSE CODES WHICH ARE USER CORRECTABLE
Relevel Shutdown Counter (05)	(HYDRO ONLY) TYPE IN THE NUMER AND PRESS # TO SET THE NUMBER OF ALLOWABLE RELEVELS BEFORE SHUTDOWN. THE COUNTER RESETS TO ZERO WITH A CALL (ADJUSTABLE 0-10 | 0 = DISABLED)
Relevel Shutdown Timer (02)Minute	(HYDRO ONLY) TYPE IN THE TIME AND PRESS # TO SET THE MAXIMUM TIME BETWEEN RELEVELS THAT WILL INCREMENT THE RELEVEL COUNTER
Auto Shutdown Counter X10(000)	TYPE IN THE NUMBER AND PRESS # TO SET THE NUMBER (SETTING X10) TRIPS BEFORE THE ELEVATOR IS DISABLED (ADJUSTABLE 0 - 100 | 0 = DISABLED) THIS FEATURE WILL BE DISABLED AFTER FOUR ACTIVATIONS
Sabbath (1)Yes (0)No (1)	DEFAULT IS YES AND SHOULD NOT BE CHANGED.
Service Interval Counter X10(000)	TYPE IN THE NUMBER AND PRESS # TO SET THE NUMBER (SETTING X10) TRIPS BEFORE THE EM LIGHT WILL FLASH 3 TIME AT THE START OF EVERY RUN RESET THIS FEATURE BY CLEARING THE "COUNTER" FROM THE MAIN MENU (ADJUSTABLE 0 - 250 | 0 = DISABLED)
Modify Password (1)Yes (0)No (0)	TYPE IN C TO KEEP THE PASSWORD AND VIEW NEXT PARAMETER TYPE IN 1 AND PRESS # TO CHANGE THE PASSWORD NOTE: PASSWORD MUST BE 5 DIGITS (NUMARICAL ONLY)

LOG

PRESS (A) TO VIEW THE MENU



PRESS (3) TO VIEW THE LOG

THE FIRST LINE IS A DESCRIPTION OF THE EVENT
2U=EVENT OCCURED AT 2ND FL WHILE TRAVELING UP
L= LAST EVENT

(C) VIEWS PREVIOUS EVENT UNTIL "NO EVENTS" IS SEEN

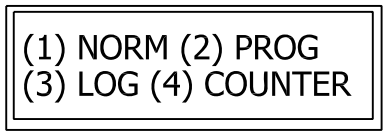
ONCE IN LOG MODE:

THE LOG STORES 20 ERRORS IN A LAST IN FIRST OUT FORMAT.

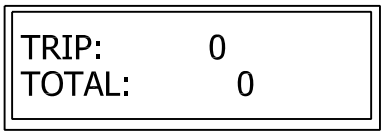
(A) TO RETUN TO THE MAIN MENU
(B) TO VIEW LATER EVENT
(C) TO VIEW EARLIER EVENT
(D) TO CLEAR THE LOG
Note: PASSWORD IS REQUIRED TO CLEAR LOG
(*) TO PERFORM A RESET

COUNTERS

PRESS (A) TO VIEW THE MENU



PRESS (4) TO VIEW COUNTERS



THE "TRIP" AND "TOTAL" RUN COUNTERS ARE DISPLAYED

(C) TO VIEW UP LEVELING COUNTER

ONCE IN COUNTER MODE:

THE SYSTEM HAS THREE COUNTERS.

TRIP: INCREMENTS EACH TIME THE CAR MOVES IN RESPONSE TO A CALL. RESETABLE

TOTAL: SAME AS TRIP BUT NOT RESETABLE

UP LEVELING: INCREMENTS EACH TIME THE CAR MOVES UP WITHOUT A CALL. RESETABLE

(A) TO RETUN TO THE MAIN MENU
(B) TO VIEW PREVIOUS COUNTERS
(C) TO VIEW NEXT COUNTER
(D) TO CLEAR THE COUNTERS
Note: PASSWORD IS REQUIRED TO CLEAR COUNTERS
(*) TO PERFORM A RESET

Appendix E
Determining if the LEV selector is operational
TKA Assy: 6300NB1

1. Before powering up the controller for the first time, Remove J16 (DZ, UL, DL, P1, P2, P3, P4) from logic board
2. Power up controller in "TEMP RUN"
3. Move car and re-position selector magnets per Appendix B
4. The car will need to be positioned level at every floor and the following resistance measurements will be confirmed:

Note: Resistance will be measured from terminal J3.5 (REF) on the logic board to the un-plugged J16 terminal strip. The unit must be powered up.

Terminal	FLOOR 1 Reading	FLOOR 2 Reading	FLOOR 3 Reading	FLOOR 4 Reading
J16.1 (DZ)	<100 ohms	<100 ohms	<100 ohms	<100 ohms
J16.2 (UL)	<100 ohms	<100 ohms	<100 ohms	<100 ohms
J16.3 (DL)	<100 ohms	<100 ohms	<100 ohms	<100 ohms
J16.4 (P1)	<100 ohms	>20 Meg ohms	>20 Meg ohms	>20 Meg ohms
J16.5 (P2)	>20 Meg ohms	<100 ohms	>20 Meg ohms	>20 Meg ohms
J16.6 (P3)	>20 Meg ohms	>20 Meg ohms	<100 ohms	>20 Meg ohms
J16.7 (P4)	>20 Meg ohms	>20 Meg ohms	>20 Meg ohms	<100 ohms

5. Move car in between floors and verify the following resistance measurements:

Terminal	BETWEEN FLOOR Reading
J16.1 (DZ)	>20 Meg ohms
J16.2 (UL)	>20 Meg ohms
J16.3 (DL)	>20 Meg ohms

Summary:

- When the selector is in front of a magnet, the resistance is low (<100 ohms)
- When the selector is NOT in front of a magnet the resistance is high (>20 Meg ohms)

MIN / MAX resistance values:
The retrofit controller will function normally if the resistance measurements are within the following limits:

- Selector in front of a magnet 250 ohms Max
- Selector NOT in front of a magnet 10 Meg ohms Min