VERTICAL EXPRESS

ICON32 Controller

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INSTALLATION SECTION

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Preliminary Installation

Install the following items. Refer to the Vertical Express *Installation Manual* (located at: http://www.verticalxpress.com/component_manuals/Installation Manual), and the installation instructions that ship with the equipment.

- Pit template (if provided), pit channel, and buffers
- Jack, jack follower guides (as required), rail brackets and rails
- Car sling and platform
- Power unit and controller
- Fluid line (jack line)

Prepare for Temporary Operation

1. Turn OFF, Lockout, and Tagout the mainline disconnect.
2. Pipe and install power from the mainline disconnect to the controller. See Figure 2 on page 1-4.

NOTE

- Conduit for the wires from the mainline disconnect must be installed on the same side of the controller cabinet as the motor starter.
- The fourth wire ground from the disconnect is to be landed on the dedicated ground bar of the controller, not the motor starter heatsink.

3. Verify that CON19, CON20, and CON21 are removed on the IOF Card. See Figure 1.

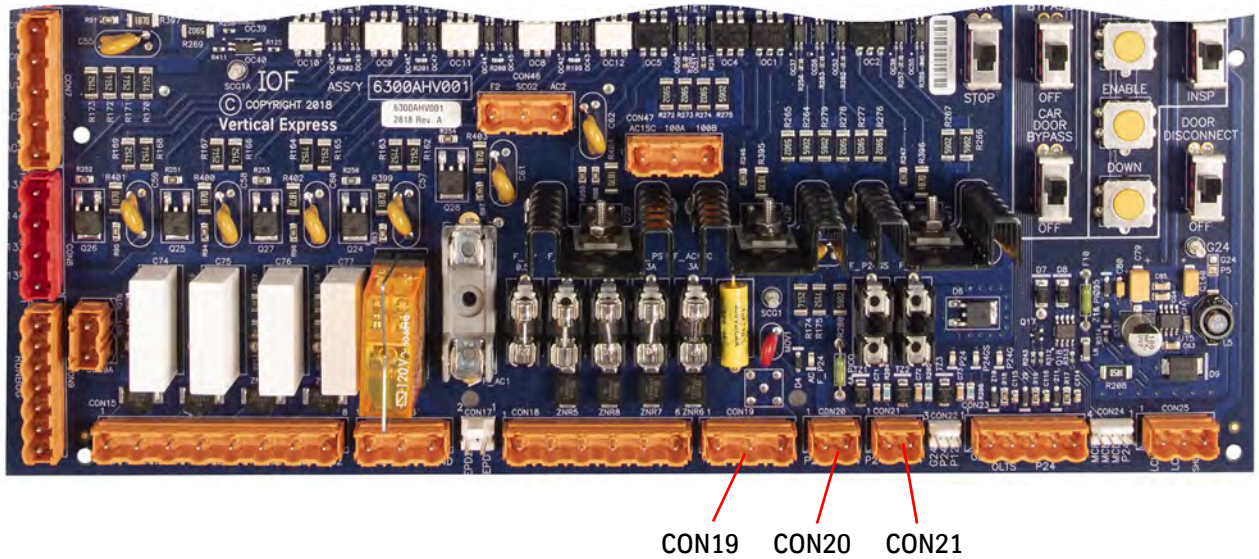


Figure 1 - IOF Card Connectors

Prepare for Temporary Operation
(continued)

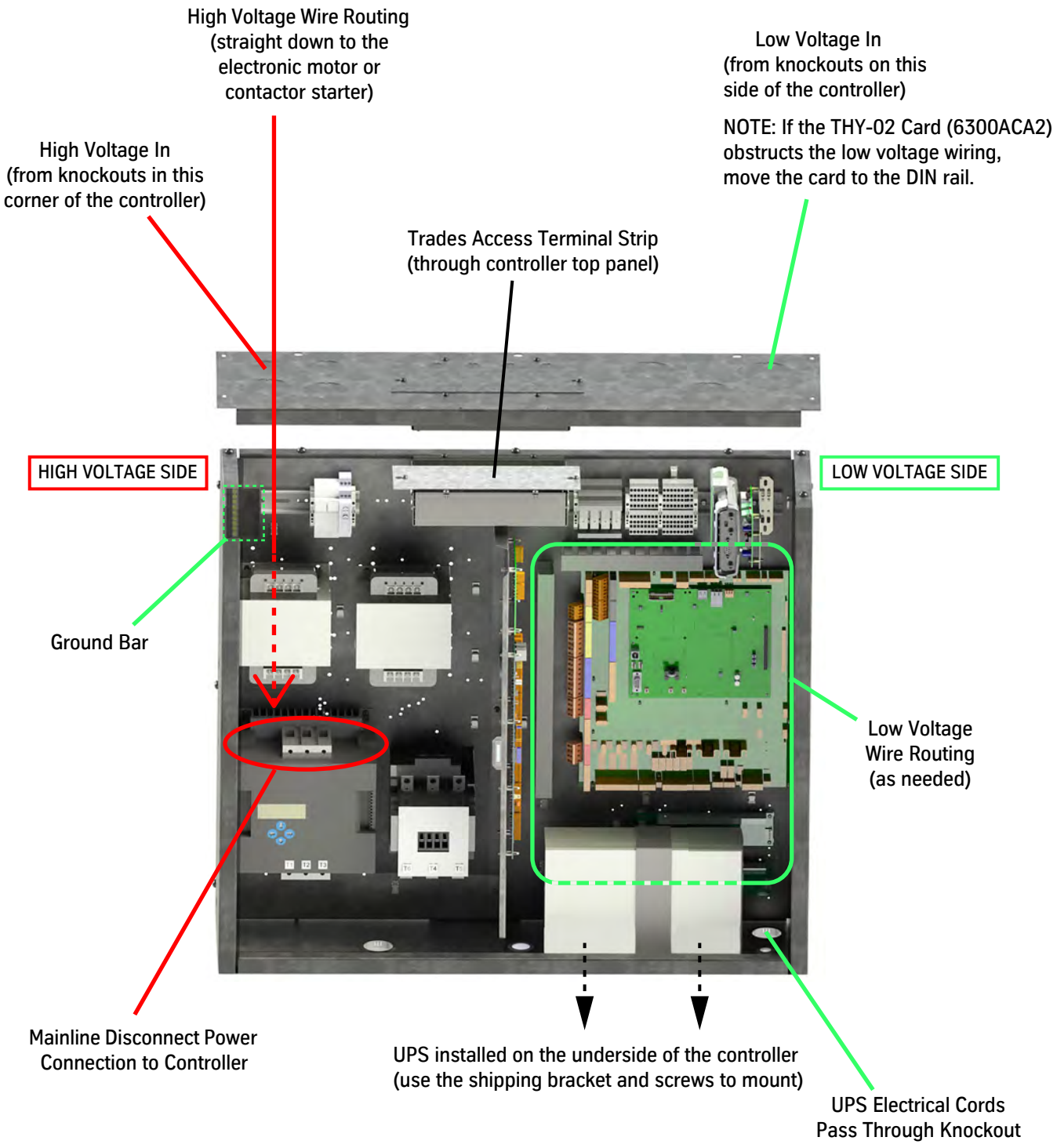


Figure 2 - Power from Mainline Disconnect to the Controller

Installation
(continued)

Configure the UPS

1. When on temporary operation, connect the following:
   a. The AC receptacle cord from the IOF Card - CON18, pins 1, 2, and 3.
   b. The AC plug from the IOF Card - CON18, pins 4, 5, and 6.

- The UPS should not be in the AC circuit during temporary operation. See Figure 3.
- If battery lowering is not required for the job, no UPS will be provided.
- When battery lowering is not present, Manufacturing installs jumper wires from CON18 pin 1 to pin 4, pin 2 to pin 5, and pin 3 to pin 6 on the IOF Card.
- The UPS may be mounted below the controller - Use the shipping bracket and screws to hold the UPS in place, and wire the plug through a knock out in the bottom of the controller.

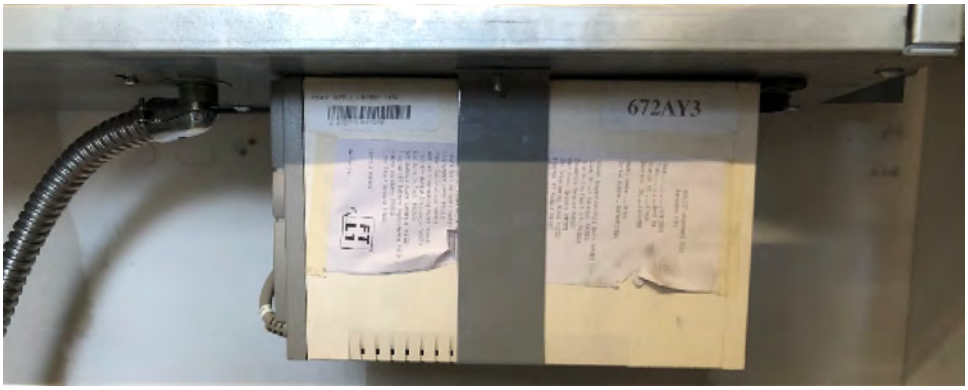


Figure 3 - UPS Unit Connections

2. Use a temporary jumper to connect EPD1 and EPD2 (located in the Trades Access Panel, on the top of the controller). See Figure 4.

The EPD1 and EPD2 jumper will be replaced by an auxiliary set of contacts in the disconnect to prevent the control system from operating on any form of alternate power when the disconnect is in the OFF position.

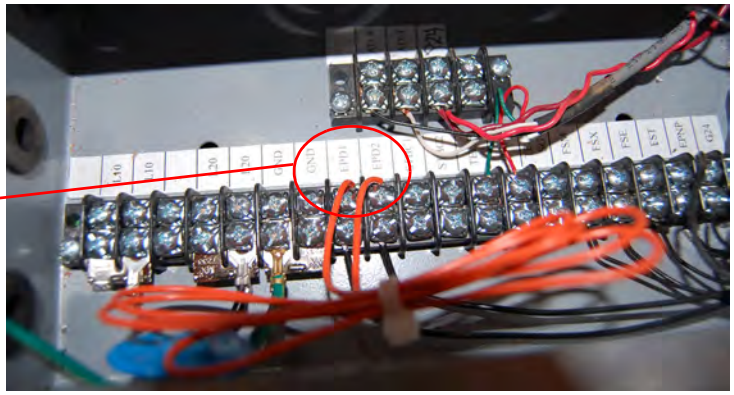


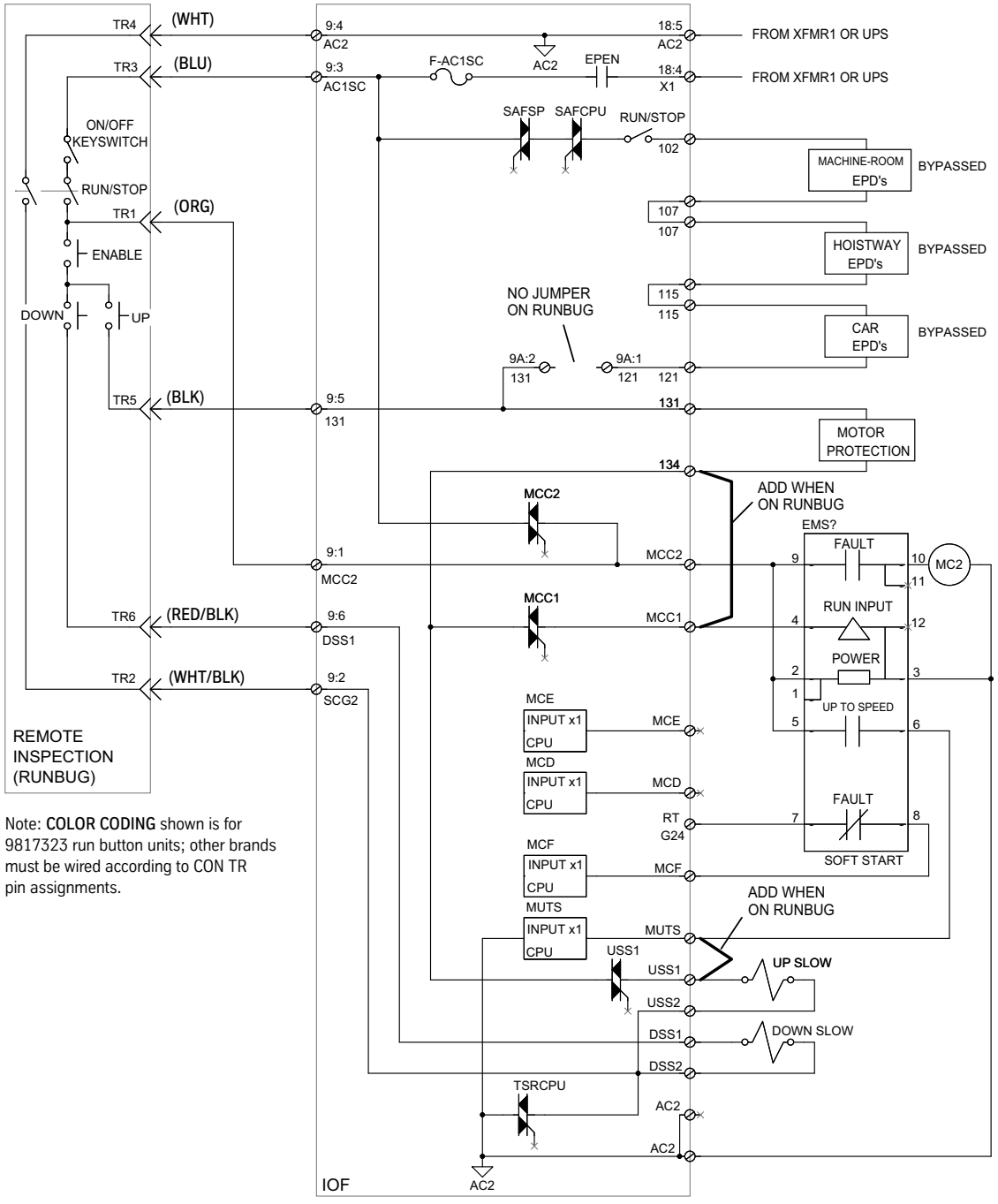
Figure 4 - EPD1/EPD2 Jumpers

Temporary Operation

CAUTION Only connect the approved thyssenkrupp pendant station (runbug, part number 9817323) for temporary operation. The pendant station connects directly to the IOF Card (bottom left corner) at the connector "RUNBUG."

Runbug Set Up

- For Electronic Starters - Confirm that there are Manufacturing installed temporary run jumpers between MUTS/USS1 and 134/MCC1. See Figure 5.
- For Across The Line Starters - See Figure 6 on page 1-7.



Note: **COLOR CODING** shown is for 9817323 run button units; other brands must be wired according to CON TR pin assignments.

Figure 5 - Temporary Operation Pendant Station (RUNBUG) Connection for Electronic Motor Starting

Runbug Set Up
(continued)

- For Across The Line Starters - Confirm that there are Manufacturing installed temporary run jumpers between 134, MCC1 and USS1. See Figure 6.

NOTE

- The EPEN relay is energized by input EPD2 from the Trades Access Panel.
- On runbug, the CPU Card operation/faults is irrelevant to Up and Down operation because the operation is dependent on 120VAC discrete feed to relays and solenoids from the pendant station.

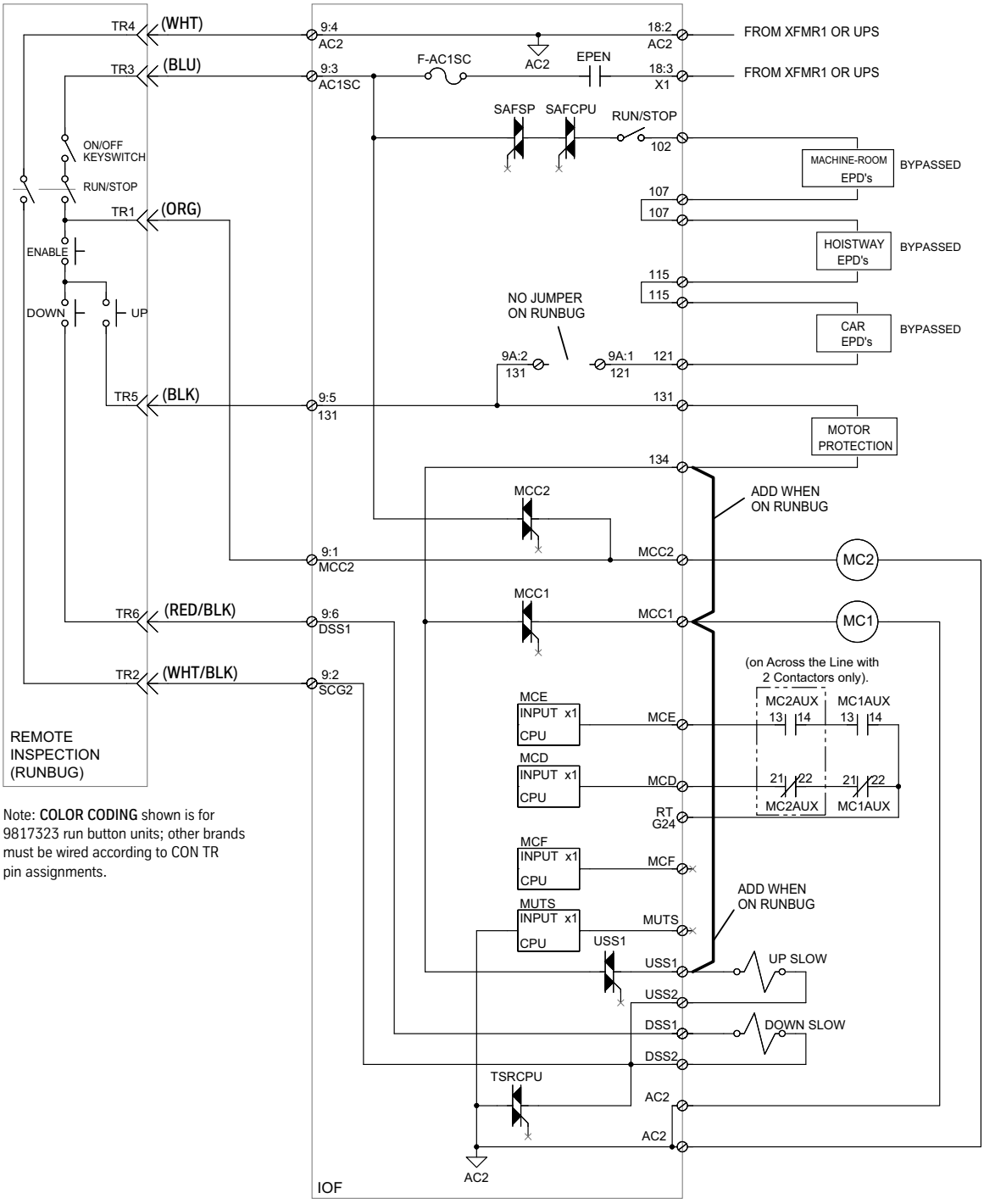


Figure 6 - Temporary Operation Pendant Station (RUNBUG) Connection for Across the Line Motor Starting

Runbug Set Up
(continued)

1. Remove the plug at CON16 on the IOF Card. See Figure 7.

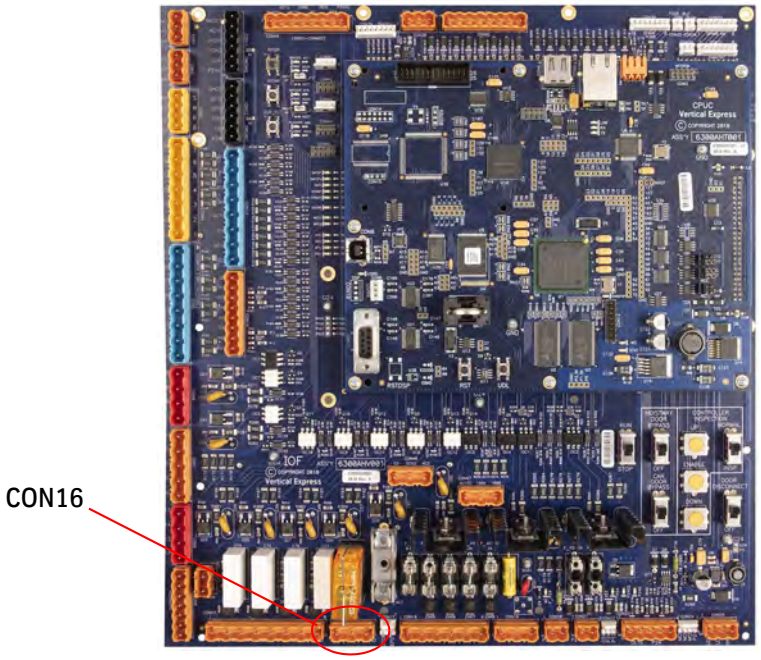


Figure 7 - IOF Card (6300AHV001)

CAUTION **Initial power application occurs in the next step. If incorrect, the electronic starter may be damaged.**

2. View the nameplate sticker on the electronic starter to determine its voltage rating, and view the power unit data tag for the motor voltage rating.
   a. Compare these ratings to the known building voltage provided at the disconnect. Before continuing, correct as required.

NOTE Most electronic starters are rated at 200-460VAC (and for special applications up to 575VAC), and should not be damaged by incorrect voltage from the disconnect that is within this range. However, Electronic Starter #787AF14 is rated for 200-230VAC, and application of 3 phase voltage above that rating could damage it.

   b. Turn ON the mainline disconnect.

3. Use a volt meter on the AC mode, and confirm that the secondary output from XFMR1 is between 108VAC and 132VAC.

CAUTION **If the voltage is not correct, do not continue until this issue is resolved.**

4. Turn OFF the mainline disconnect.

5. Install the plug at CON16 on the IOF Card.

6. Remove CON9A, located at the bottom left corner of the IOF Card. Be sure to save CON9A as it will be reinstalled after temporary operation.

Runbug Set Up
(continued)

7. Install the RUNBUG plug at CON9 on the IOF Card. See Figure 8.

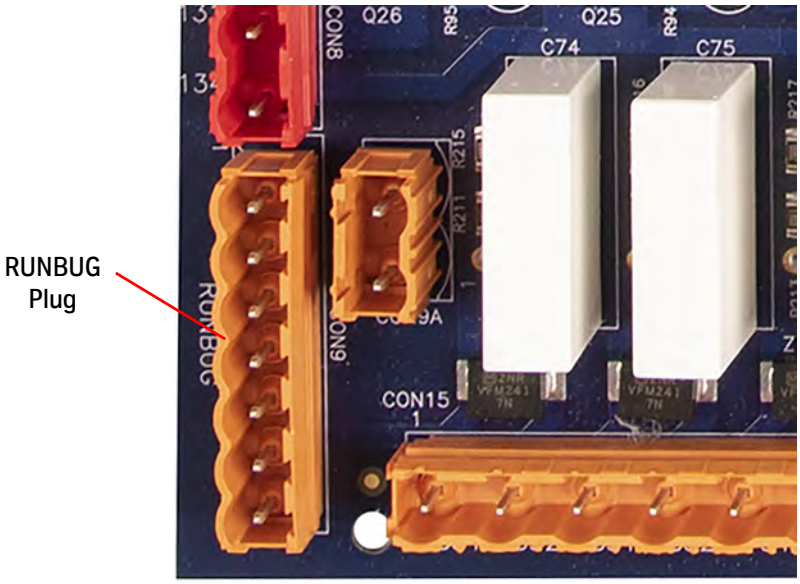


Figure 8 - RUNBUG Plug at CON9 on the IOF Card

8. Fill the power unit fluid reservoir with the appropriate fluid for this job.
9. Turn ON the mainline disconnect.
10. Confirm that the AC LED is illuminated. See Figure 9.

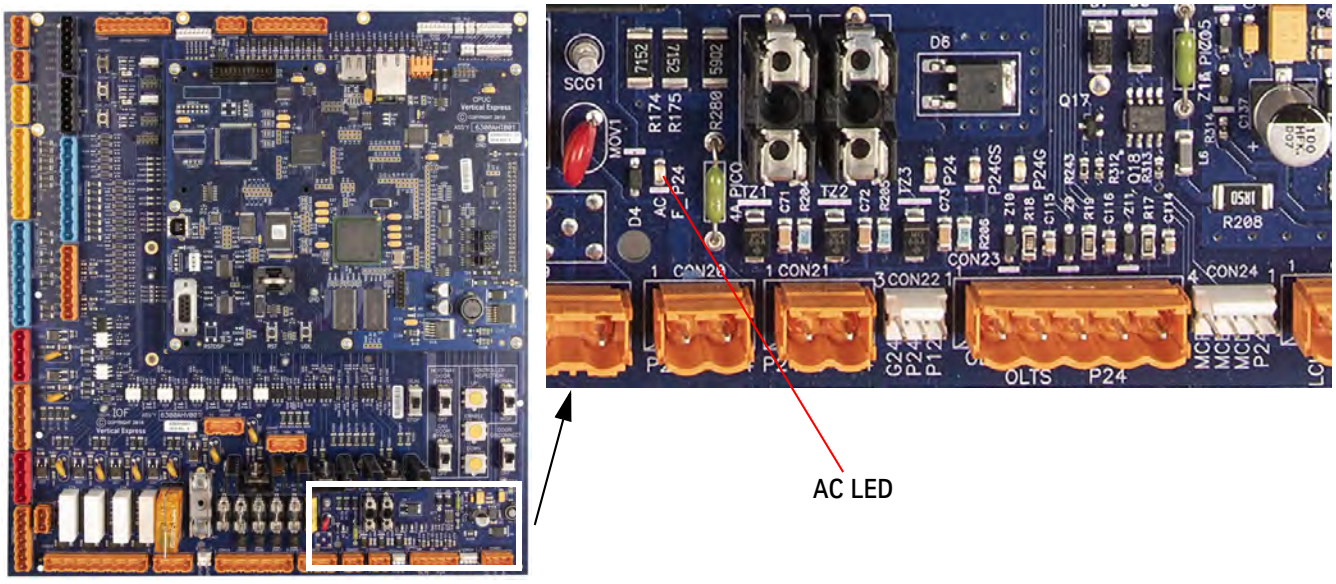
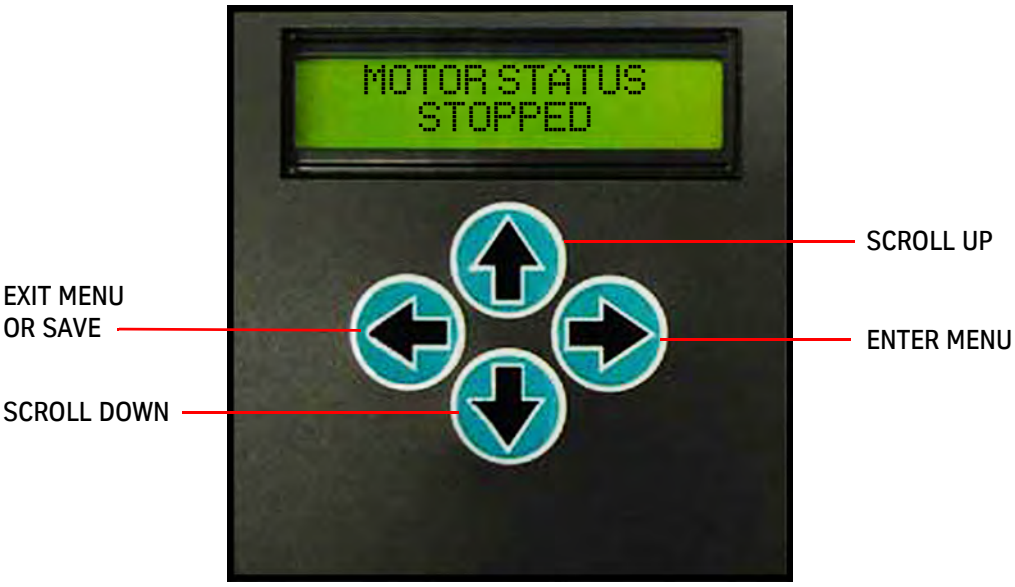


Figure 9 - Illuminated AC LED on IOF Card

Electronic Starter Setup

For Across the Line Motor Starting, see Mechanical Starter Set Up with ESP200 Overloads on page 1 - 11.



Electronic Starter Display

- The electronic starter displays **MOTOR STATUS STOPPED** when the system is normal. Reset the starter if it reads otherwise and, before continuing, correct any problem indicated on the display.
- The starter display reverts to **MOTOR STATUS STOPPED** after 5 minutes of inactivity.

1. Verify that the Starting Amps = the Motor Nameplate Amps x 3 (Mfg. default).

   Optional: 2 x FLA = minimum setting, 4.5 x FLA = maximum setting.

2. From the **MOTOR STATUS** menu, press ←. The **STATUS** menu displays.
3. Press ↓ twice to display the **PARAMETERS** menu.
4. From the **PARAMETERS** menu, press → once. **STARTING AMPS** displays.
5. Set the starting amps value equal to three times the nameplate FLA.
   a. Press → once to access the value.
   b. Press ↑ or ↓ to adjust the value of the flashing digit. Press → to move to the next digit.
   c. Press ← to exit the starting amps parameter.

   A prompt to **ACCEPT** or **REJECT** the change displays. Press ↑ to accept or ↓ to reject and correct the parameter.

Electronic Starter Setup
(continued)

6. Press ↓ once and **OVERLOAD AMPS** displays.
   a. If the value is correct, skip to Step 8.
   b. If the value is not correct, continue to Step 7.
7. Press → once to access the value.
   a. Press ↑ or ↓ to adjust the value of the flashing digit.
   b. Press → to move to the next digit.
8. Press ← to exit to the **PARAMETERS** Menu.

   A prompt to **ACCEPT** or **REJECT** the change appears. Press ↑ to accept, or ↓ to reject and correct the parameter.

Mechanical Starter Set Up with ESP200 Overloads

Overload relay current settings are preset by Manufacturing. The following initial adjustment can also be used during temporary operation for jobs that trip overloads, but the actual overload current will be set during final adjustment.

1. Use Table 1 below or Table 2 on page 1 - 12 to determine the overload relay current setting based on the motor horsepower and voltage or nameplate amps.
2. Set the full load amps adjustment dial to the overload current setting from Step 1. See Figure 10.

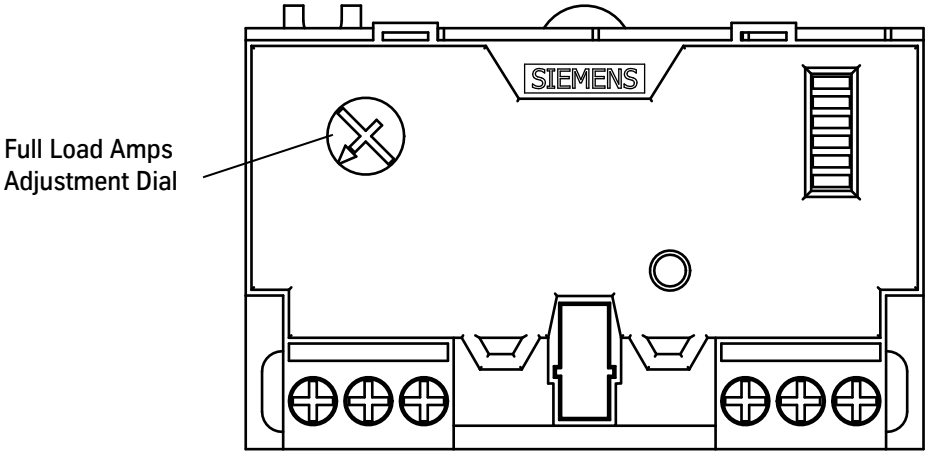


Figure 10 - ESP200 Overload Adjustment

Motor HP	Motor Voltage (50 or 60 Hz)	NEC Motor NP Rated Amps	Wiring Configuration	Overload Current Setting
7.5	200V/208V	46	Special, See Wiring Diagrams	50
	230	40		43
10	200V/208V	58		62
	230	50		54

Table 1 - Overload Specifications For Single Phase Motors

Mechanical Starter Set Up with ESP200 Overloads
(continued)

Motor HP	Motor Voltage (50 or 60 Hz)	NEC Motor NP Rated Amps	Line or Phase Wiring Configuration	Overload Current Setting
5	200V/208V	17.5	Line	25.0
	220V	15.9	Line	22.8
	230V	15.2	Line	21.7
	380V	9.2	Line	13.2
	415V	8.4	Line	12.1
	460V	7.6	Line	10.9
	575V	6.1	Line	8.7
7.5	200V/208V	25	Line	35.8
	220V	23	Line	32.9
	230V	22	Line	31.5
	380V	13	Line	18.6
	415V	12	Line	17.2
	460V	11	Line	15.7
	575V	9	Line	12.9
10	200V/208V	32	Line	45.8
	220V	29	Line	41.5
	230V	28	Line	40.0
	380V	17	Line	24.3
	415V	15	Line	21.5
	460V	14	Line	20.0
	575V	11	Line	15.7
15	200V/208V	48	Line	68.6
	220V	44	Line	62.9
	230V	42	Line	60.1
	380V	25	Line	35.8
	415V	23	Line	32.9
	460V	21	Line	30.0
	575V	17	Line	24.3
20	200V/208V	62	Line	88.7
	220V	56	Line	80.1
	230V	54	Line	77.2
	380V	33	Line	47.2
	415V	30	Line	42.9
	460V	27	Line	38.6
	575V	22	Line	31.5
25	200V/208V	78	Line	111.5
	220V	71	Line	101.5
	230V	68	Line	97.2
	380V	41	Line	58.6
	415V	37	Line	52.9
	460V	34	Line	48.6
30	200V/208V	92	Line	131.6
	220V	84	Line	120.1
	230V	80	Line	114.4
	380V	48	Line	68.6
	415V	44	Line	62.9
	460V	40	Line	57.2
	575V	32	Line	45.8
40	200V/208V	120	Phase	99.1
	220V	109	Phase	90.0
	230V	104	Phase	85.9
	380V	63	Line	90.1
	415V	57	Line	81.5
	460V	52	Line	74.4
	575V	41	Line	58.6
50	200V/208V	150	Phase	123.8
	220V	136	Phase	112.3
	230V	130	Phase	107.3
	380V	79	Line	113.0
	415V	72	Line	103.0
	460V	65	Line	93.0
	575V	52	Line	74.4
60	200V/208V	177	Phase	146.0
	220V	161	Phase	132.9
	230V	154	Phase	127.1
	380V	93	Line	133.0
	415V	85	Line	121.6
	460V	77	Line	110.1
	575V	62	Line	88.7
75	200V/208V	221	Phase	180.0
	220V	201	Phase	166.0
	230V	192	Phase	158.0
	380V	116	Phase	95.8
	415V	106	Phase	87.5
	460V	96	Phase	79.3

Table 2 - Overload Specifications For ESP 200 Overload Applications

Pump Motor Rotation

IMPORTANT!

Swapping motor leads to correct motor rotation will result in a motor wiring fault. Motor rotation is controlled through adjustments in the starter and also the line input to the starter.

1. Turn ON the mainline disconnect.

2. Momentarily press **UP** and **SAFE** on the temporary run box, and observe the direction of the motor rotation (clockwise rotation is standard for Vertical Express equipment when viewed from the shaft end).

   ABC = Standard Dry (AP) units (CW rotation as viewed from the shaft end). The motor is mounted to the left of the pump.

   CBA = Standard Wet (EP) units (CCW rotation as viewed from the pump end).

   – If the motor rotation is correct, continue to Step 5.

   – If the rotation is incorrect, complete the appropriate procedure below.

   • For Mechanical Starters - Reverse L1 and L2 on the starter.

   • For Electronic Starters - Change the line rotation setting in the starter.

   a. Press ← once. The **STATUS** menu displays.

   b. Press ↓ twice. The **PARAMETERS** menu displays.

   c. Press → and **STARTING AMPS** displays.

   d. Press ↓ until **LINE ROTATION** displays.

   e. Press → to access the value.

   f. Press ↑ for CBA. (CBA = standard wet unit.)

   g. Press ← to select the value displayed.

   h. Press ↑ to accept the value, or ↓ to reject the change. If the wrong value is accepted, repeat steps e. through h.

3. Verify the correct motor wiring. See Figure 11 on page 1-14.

4. Check the motor rotation direction. If the direction is incorrect or if the motor is making loud sounds, swap two phase leads at the top of the controller's main line fuses (FL1 - FL3).

5. Confirm the motor rotation. It may take multiple attempts to get the incoming line phase relationship correct.

Pump Motor Rotation
(continued)

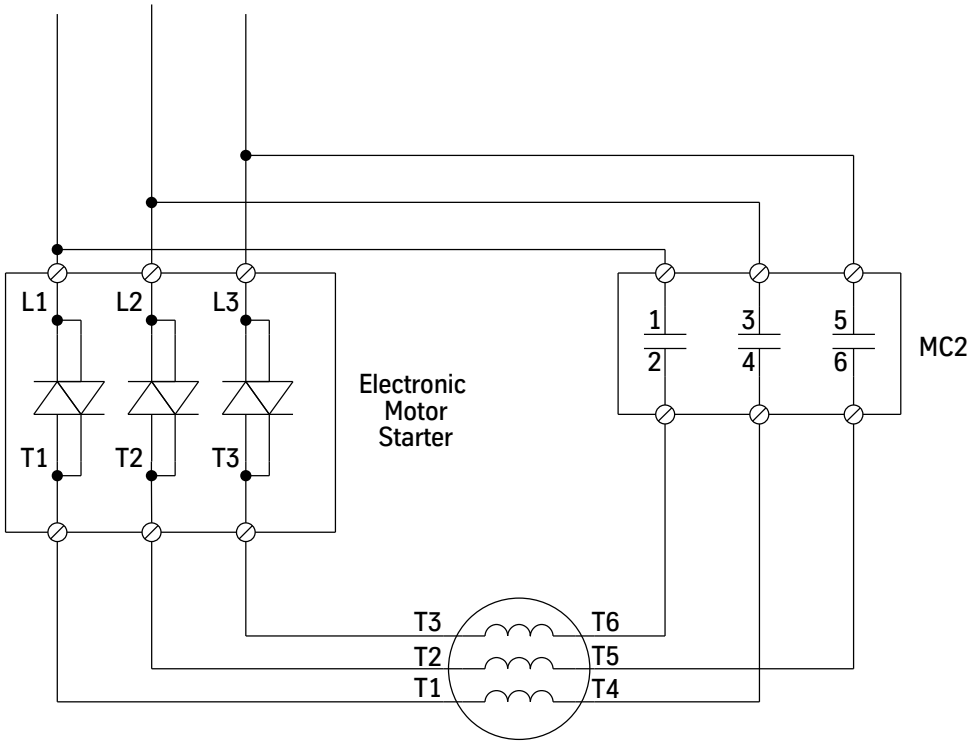


Figure 11 - Electronic Starter Pump Motor Wiring Diagram

I-2/I-3 Valve

The I-2/I-3 Valve is preset by Manufacturing, assembled on the power unit, and has been tested and adjusted. The presets are attached inside the controller, ensure movement of the car, and reduce final adjustment time.

- The I-2/I-3 Valve requires a minimum static system pressure of 90 PSI to function properly.
- Adjust and confirm the Relief Pressure and Low Pressure on each job—at this time if possible.
- If the empty sling is too light to achieve 90 PSI, defer the Low Pressure adjustment until the cab is installed and 90 PSI is achieved.
- Valves by other manufacturers: refer to the applicable valve product manual for initial setup - Bypass/Low Pressure and Relief Pressure Adjustments.

I-2/I-3 Valve
(continued)

Relief Pressure Verification

This preliminary check is to ensure that the pipe couplings and valve will not be damaged if the elevator system's oil flow or platform become restricted. The final check for the relief pressure is set with the procedure Final Relief Pressure with Full Load on page 2-33.

1. Close the shut-off valve.

2. Install a pressure gauge on the silencer's quick connect.

WARNING **Immediately stop the power unit if the pressure exceeds 625 PSI.**

3. While monitoring the pressure gauge, run the power unit in the up direction from the runbug in short bursts. Once confirmed that the pressure will not exceed 625 PSI, the pump motor can run constantly to verify the relief pressure setting.

4. Adjust the pressure relief (if necessary) to reduce pressure below 625 PSI.
   a. IN (CW) = Increase Relief Pressure
   b. OUT (CCW) = Decrease Relief Pressure

5. Briefly open the Manual Lowering Valve to relieve pressure from the valve, and confirm that the valve is fully closed when finished.

Low Pressure Adjustment

WARNING **When operating elevator from the controller, follow all safety precautions.**

- If the low pressure adjustment is made with the CPUC online, temporarily set the Z44 timer to 10 seconds, and run the motor less than 10 seconds at a time from Inspection Operation.
- OUT = Counterclockwise, CCW
  IN = Clockwise, CW

1. Ensure that the car is empty and the manual lowering valve is closed.

2. Turn OFF, Lockout, and Tagout the mainline disconnect.

3. Disconnect CON15 (on the IOF Card in the controller) to disable the valve's up slow solenoid.

4. Turn the Low Pressure adjustment screw OUT $1^{3}/_{4}$" beyond the cover plate. See Figure 12 on page 1-16.

5. Turn the Low Pressure adjustment screw IN by hand until it touches the regulator piston.

Low Pressure Adjustment
(continued)

6. Turn the power ON, and use the runbug to start the motor.
7. Turn the Low Pressure adjustment screw IN just until the car starts to move.
8. Turn the Low Pressure adjustment screw OUT until the car movement stops.
9. After the car stops, turn the Low Pressure adjustment screw OUT an additional one-half turn.
10. Tighten the locknut.
11. Stop the motor, and turn the power OFF.
12. Reconnect CON15 to enable the valve's up slow solenoid.

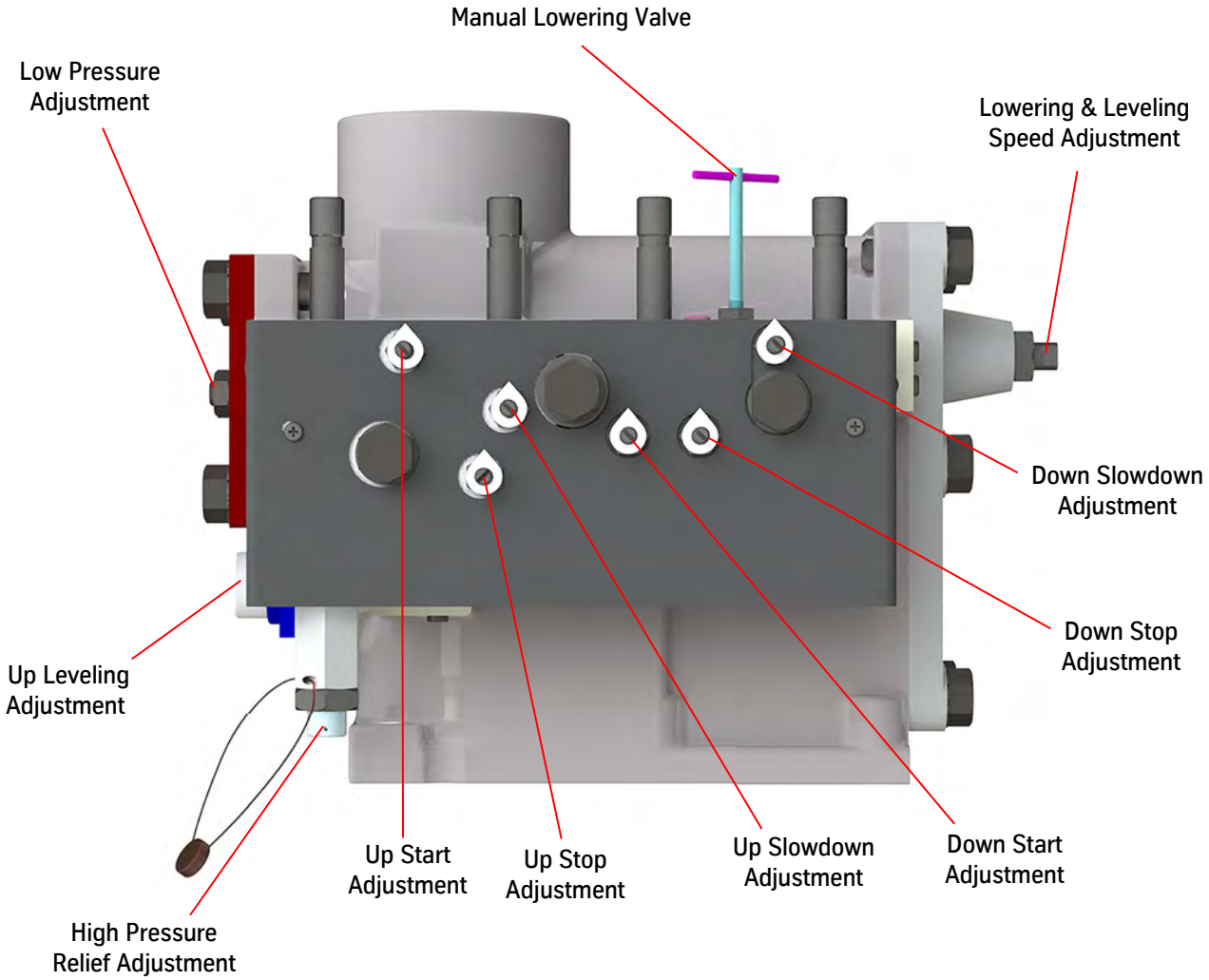


Figure 12 - I-2/I-3 Valve

Selector Tape

Mount the Tape

Close floor equipment is not required for this control system; see Floor Landing and Close Floor Leveling Magnet Installation on page 2-19.

WARNING **Selector tape is constructed of spring steel. Use EXTREME CAUTION when cutting the band that holds the selector tape onto the spool.**

CAUTION **Selector tape must be handled carefully. One kink will ruin the entire tape.**

1. Install the top tape support bracket. See the job layout for the proper quadrant and position.
2. Attach the selector tape to the top tape support bracket; loop the tape over the bracket. The loop should be a minimum of 6" at its widest point. See Figure 13 on page 1-18 or Figure 14 on page 1-19.
3. Move to the bottom of the hoistway. Attach a spring plate and tape plate to the selector tape at a point that will be no less than 6" below the selector box when the car is on the buffers.
4. Install the bottom tape support bracket on the guide rail $18^{1}/_{2}$" below the bottom of the spring plate.
5. Install the other spring plate on the tape support bracket. Ensure that the selector is between the spring plate and bracket.
6. Stretch the two selector tape springs between the spring plates. If properly installed, the springs will be one and a half times their normal length; e.g., a 10" spring will be stretched to 15".
7. Check the bow dimension in the selector tape. If the dimension is incorrect, adjust the tape at the bottom support bracket.
8. Ensure that the selector tape is even with the bottom spring plate. Measure from about 2" below the bottom mounting bracket, and cut off the excess selector tape.
9. Verify that the centerline of the selector tape is aligned within $^{5}/_{16}$" of the centerline of the guide rails and also free of kinks throughout the hoistway.
10. The 3" wide x 3" vertical plane of the tape must be parallel to the back of the rail $\pm^{5}/_{16}$" of the centerline of the guide rails and also free of kinks throughout the hoistway.

Formed Rail Selector Tape

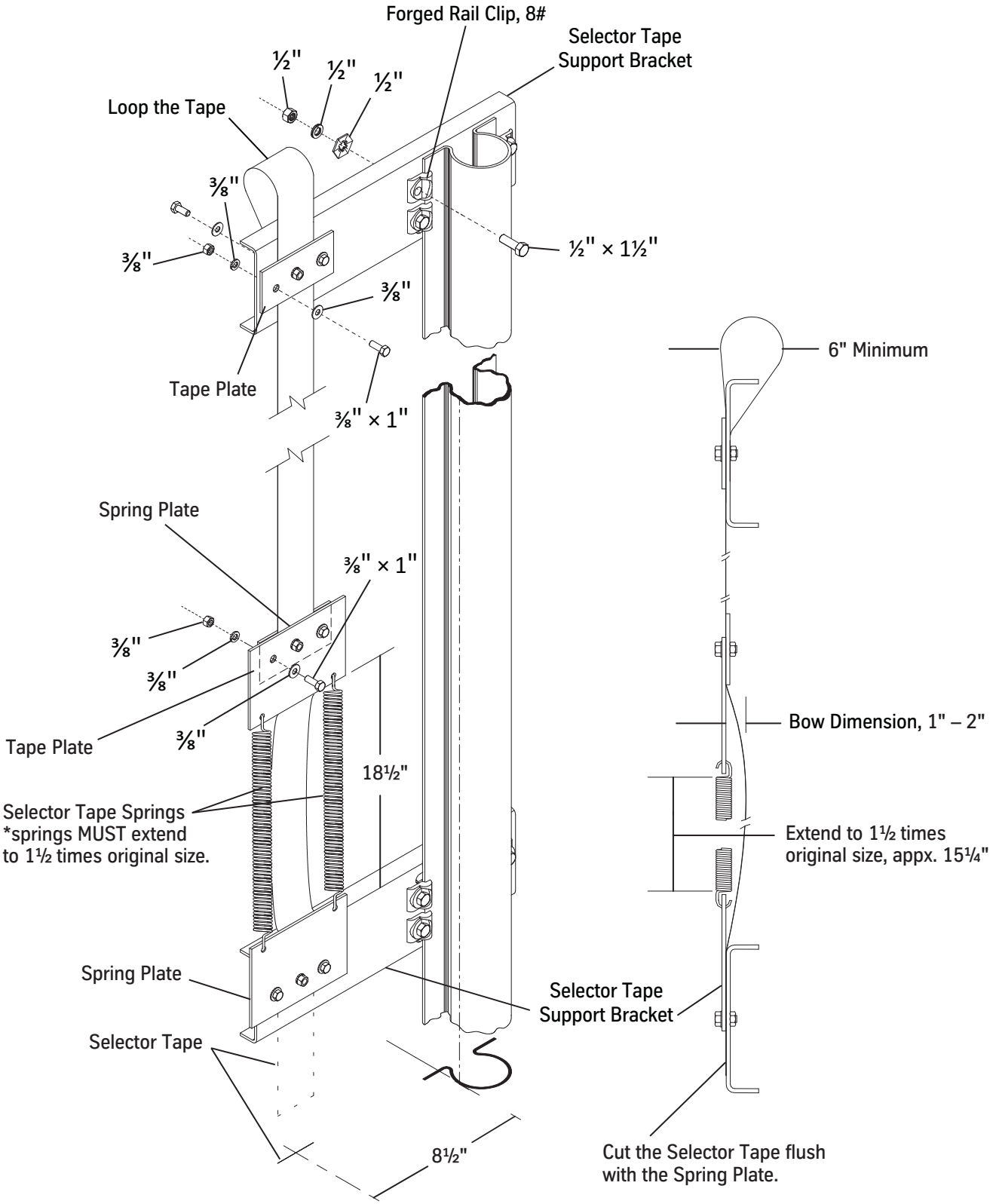


Figure 13 - Formed Rail Selector Tape Installation

T-Rail Selector Tape

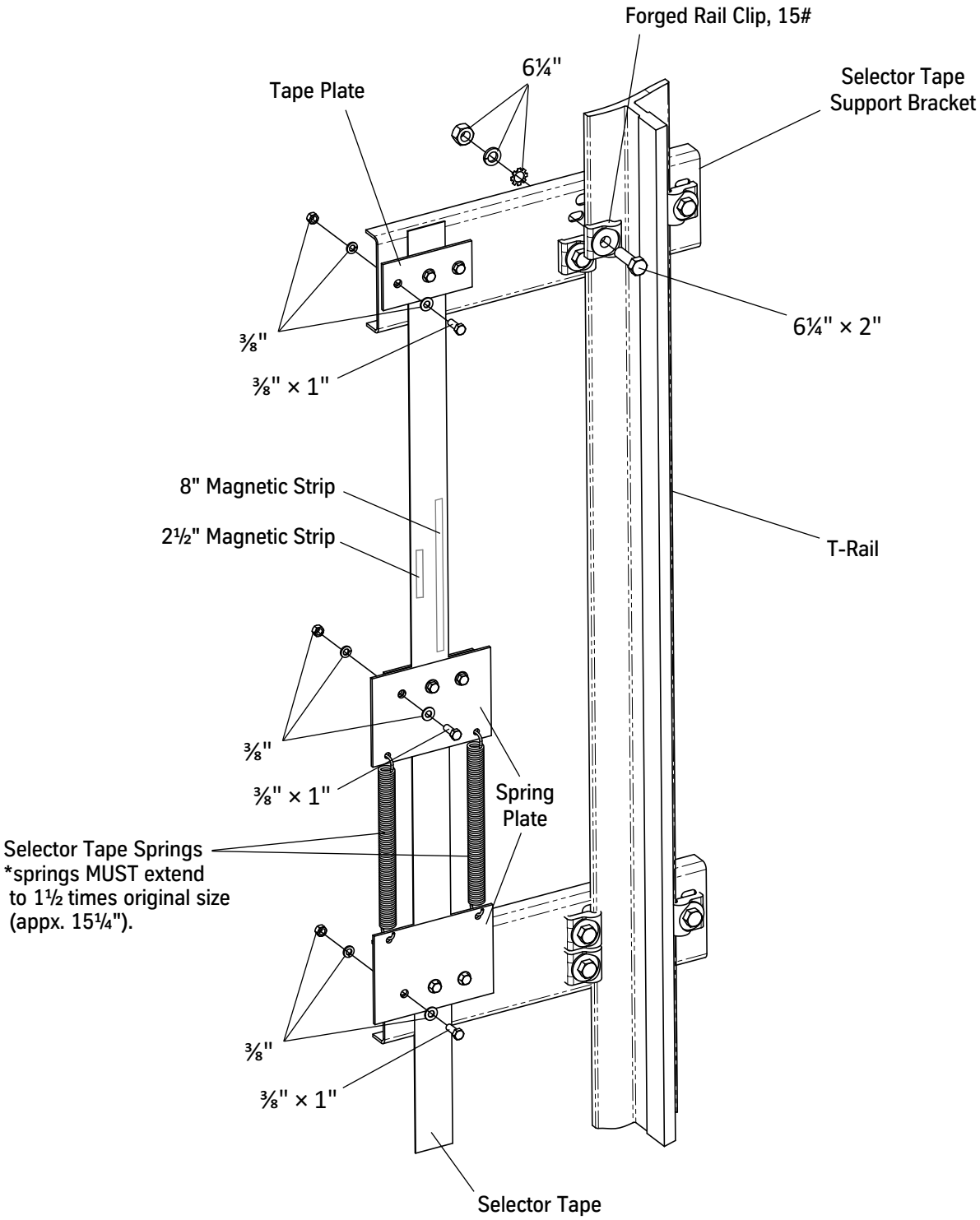


Figure 14 - T-Rail Selector Tape Installation

Hoistway Wiring

The wiring and conduit installation details represent a typical two car group, and installation for other car and group configurations is similar.

CAUTION

All wiring run in the duct is tied back on each side – separate high voltage from low voltage. Do not run any low voltage wiring (including any communication wiring) with any wiring that is high voltage switching, such as motor leads.

- Flexible metallic tubing (flex) can be used in conduit runs up to 6 feet.
- Use electrical metallic tubing (EMT) in conduit runs longer than 6 feet.
- Check the job layout to determine the proper quadrant for location of equipment.
- Anchor bolts and hardware (for fastening conduit to the wall) are not furnished as part of the wiring package.
- All conduit, wireway, wire, and cable is furnished in bulk and must be cut to length.
- $2^1/_2$" x 4" wireway (duct) is provided for the door interlock wiring and hall node riser. The hall node riser consists of hall nodes mounted within the duct at each floor location to provide interconnection and communication to hall devices such as position indicators, hall calls, and hall lanterns for up to two cars.
- Install one $^3/_4$" EMT run at each landing with a rear opening.
- Install EMT from the wireway to the 4" x 4" box at the rear wall.
- For rear applications, a rear riser of hall nodes is also required. The rear riser of hall nodes is mounted in the same duct as the front riser. The rear riser provides the hall device interconnections for up to two cars with rear openings.
- Strain bolts are supplied for installing down the hoistway wireway (at as many places as may be necessary) to adequately support the hoistway wiring.
- Common functions within a group are wired to a single controller from the hoistway, and then cross-connected to the remaining cars within the same group (grouped controllers only).

Wireway and Conduit Layout

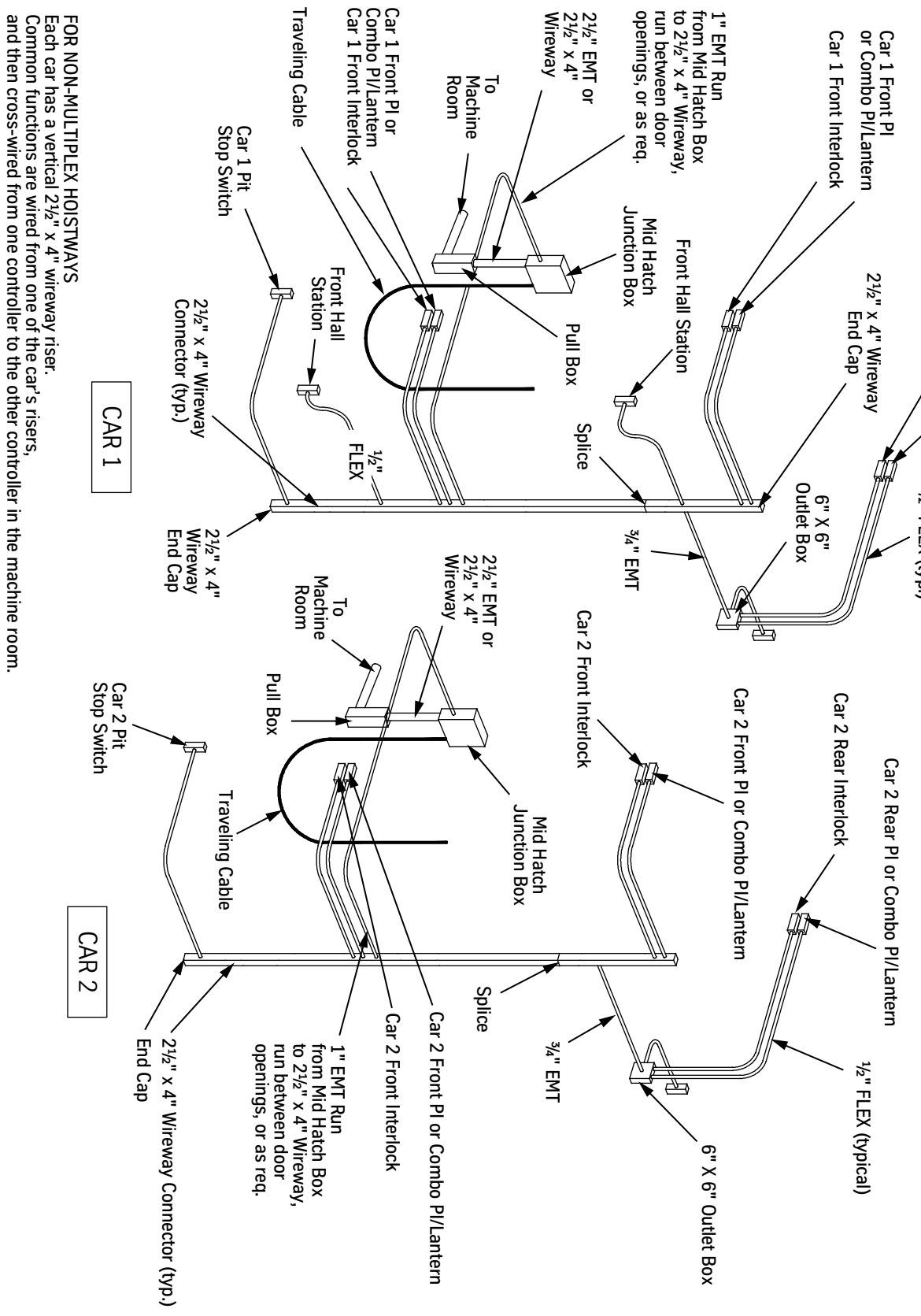
The following procedure is a suggested method of installation. See the job wiring diagrams and the wiring diagrams on the following pages.

Required Wireways/Conduits

- Hall station and door interlock riser
- Machine room to junction box
- Hoistway access and final limits (if required)
- Controller cross-connects (group jobs only)

1. Mount the junction box to the guide rail at a point above the center point of car travel and also above the entrance header. See the job layout for the proper quadrant.
2. Run wireway/conduit from the power unit/controller in the machine room to the junction box.
3. Install the hall station and the door interlock riser.
4. Run conduit and mount the hall signal fixture boxes.
5. Run conduit and mount boxes for the position indicators, the lanterns, and the pit stop switch.
6. Run conduit for final limits as required.

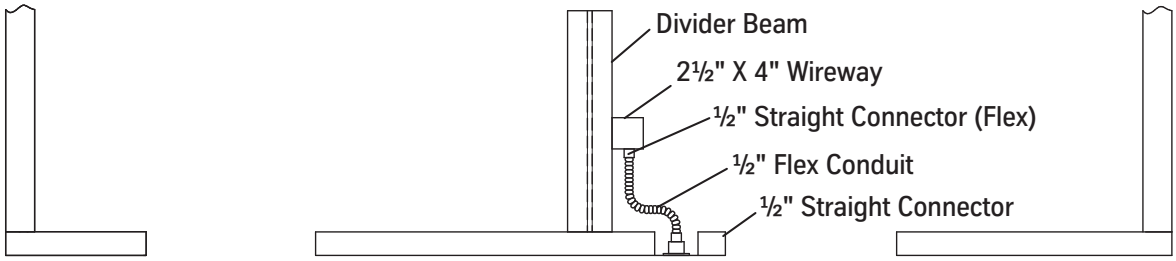
Typical Hoistway Conduit/Duct Layout



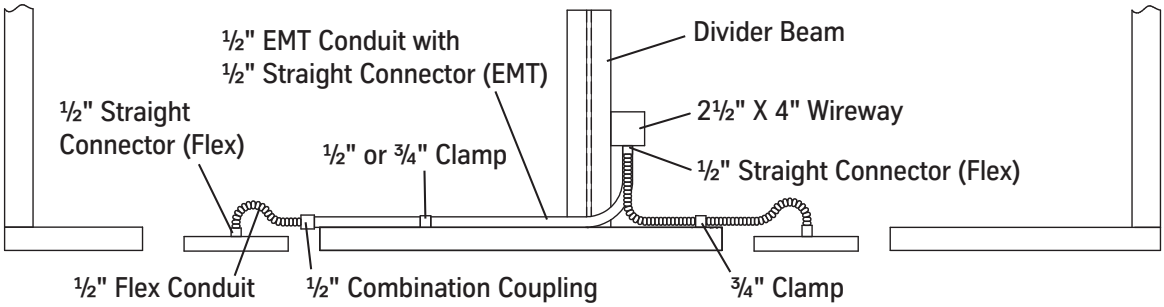
FOR NON-MULTIPLEX HOISTWAYS
Each car has a vertical 2½" x 4" wireway riser.
Common functions are wired from one of the car's risers,
and then cross-wired from one controller to the other controller in the machine room.

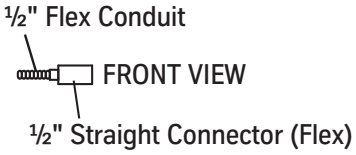
Typical Front Conduit/Duct Layout

Hall Station, Fire Service Switch Installation

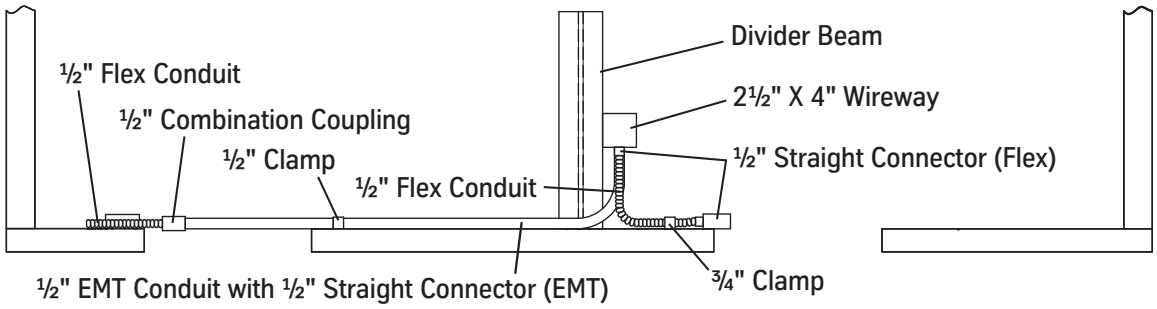


Hall Lanterns, Position Indicators Installation



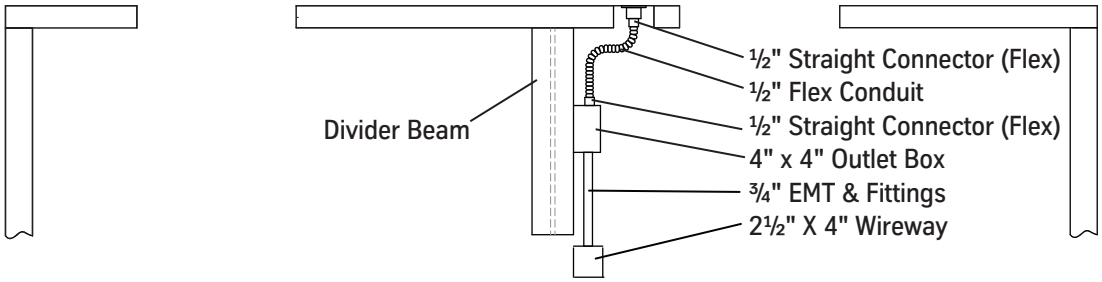


Door Interlock Installation

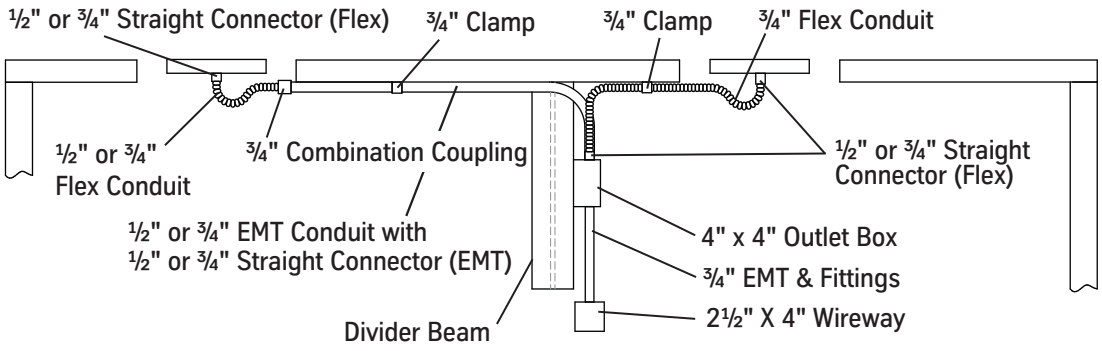


Typical Rear Conduit/Duct Layout

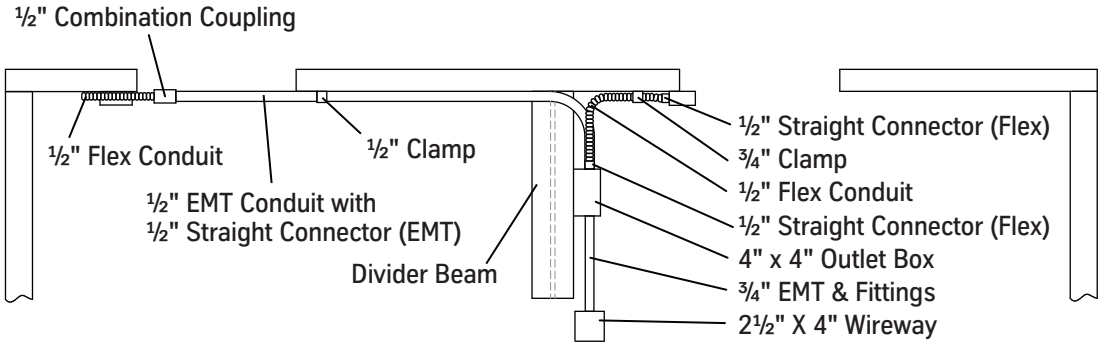
Hall Station, Fire Service Switch Installation



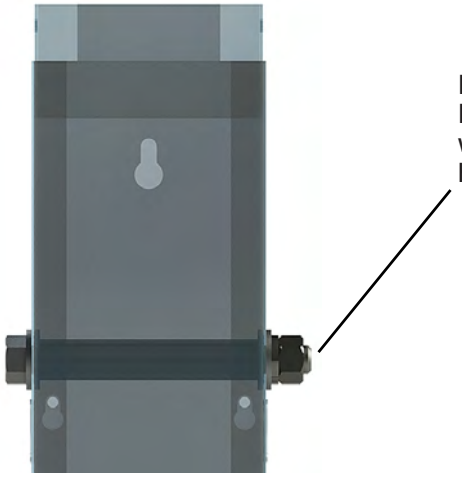
Hall Lanterns, Position Indicators Installation



Door Interlock Installation



Strain Bolt Installation



Install strain bolt in the wireway as shown. Remove one knockout on each side of the wireway and install the strain bolt. Secure hoistway wires to the bolt with tie wraps.

Interlock Wiring

See Figure 15 on page 1-26.

For job specific connections, see the job wiring diagrams and job specific Field Wiring Chart (940KW).

Hoistway Access (HWA) Landing interlocks connect to the following dedicated inputs:

- One for the bottom HWA landing.
- One for the top HWA landing.
- All Front non-HWA landing contacts connect in series to a dedicated input.
- All Rear non-HWA landing contacts connect in series to a dedicated input.

CLOSED & LOCKED inputs; used for standard passenger doors & closed/locked input contacts for freight doors.

Signal			Return		
Input	Name	IOF Connection	Name	IOF Connection	Description
2H2	IB	CON5-2	AC1B	CON5-1	Dedicated input for the bottom HWA landing hoistway door contact.
2H5	IT	CON5-4	AC1B	CON5-3	Dedicated input for the top HWA landing hoistway door contact.
216	IF	CON5-6	AC1B	CON5-5	Dedicated input for the series string of all front non-HWA landing hoistway door contacts.
226	IR	CON5-8	AC1B	CON5-7	Dedicated input for the series string of all rear non-HWA landing hoistway door contacts.

CLOSED & NOT LOCKED inputs; used for closed & not locked input contacts for freight door applications.

Signal			Return		
Input	Name	IOF Connection	Name	IOF Connection	Description
3H2	CB	CON13-2	AC1B	CON13-1	For freight door applications: Dedicated input for the bottom HWA landing hoistway door contact.
3H5	CT	CON13-4	AC1B	CON13-3	For freight door applications: Dedicated input for the top HWA landing hoistway door contact.
316	CF	CON13-6	AC1B	CON13-5	For freight door applications: Dedicated input for the series string of all front non-HWA landing hoistway door contacts.
326	CR	CON13-8	AC1B	CON13-7	For freight door applications: Dedicated input for the series string of all rear non-HWA landing hoistway door contacts.

Interlock Wiring
(continued)

This is a reference drawing. Inputs not used per job will be jumped out permanently. See job wiring diagrams.

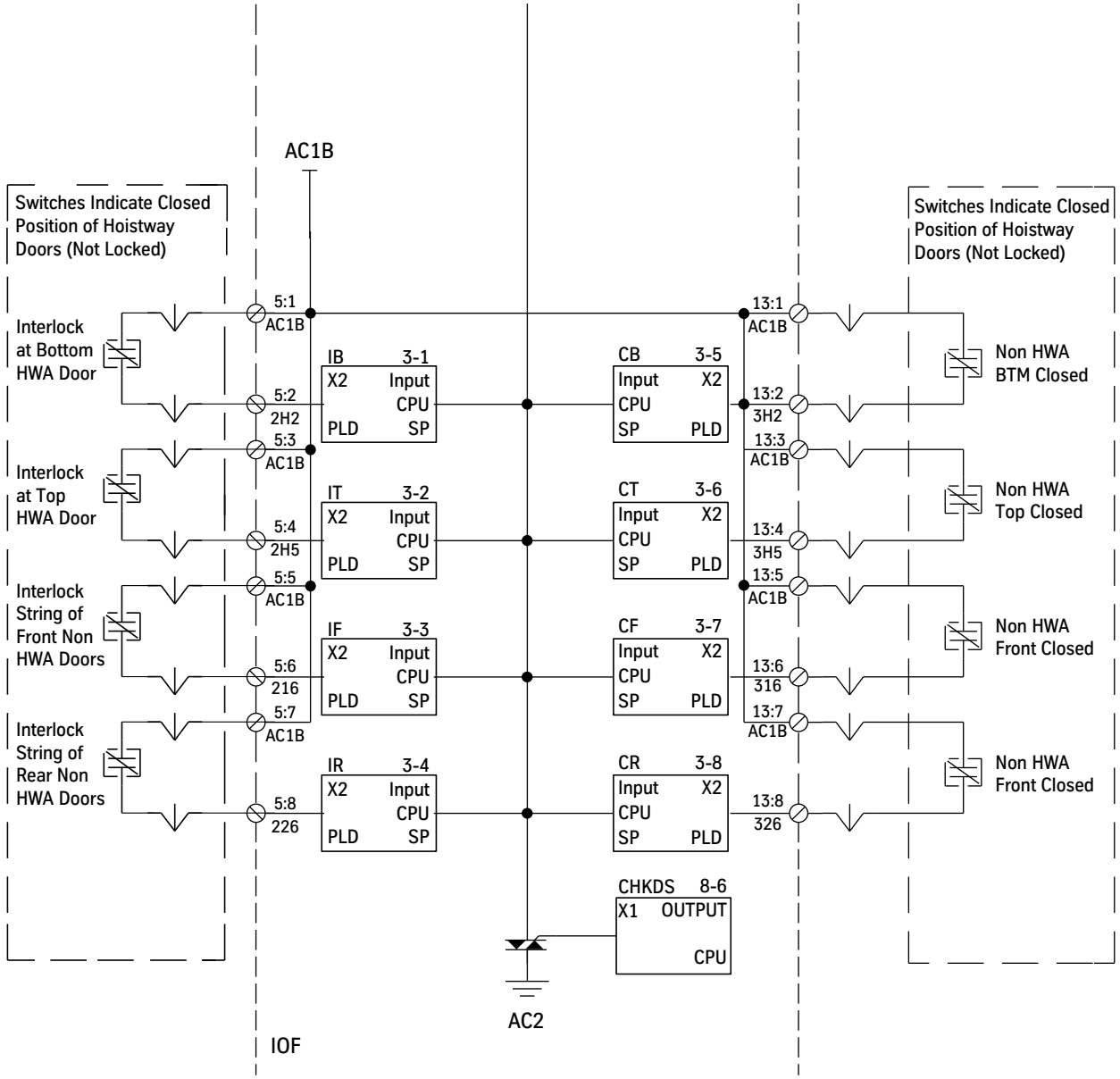
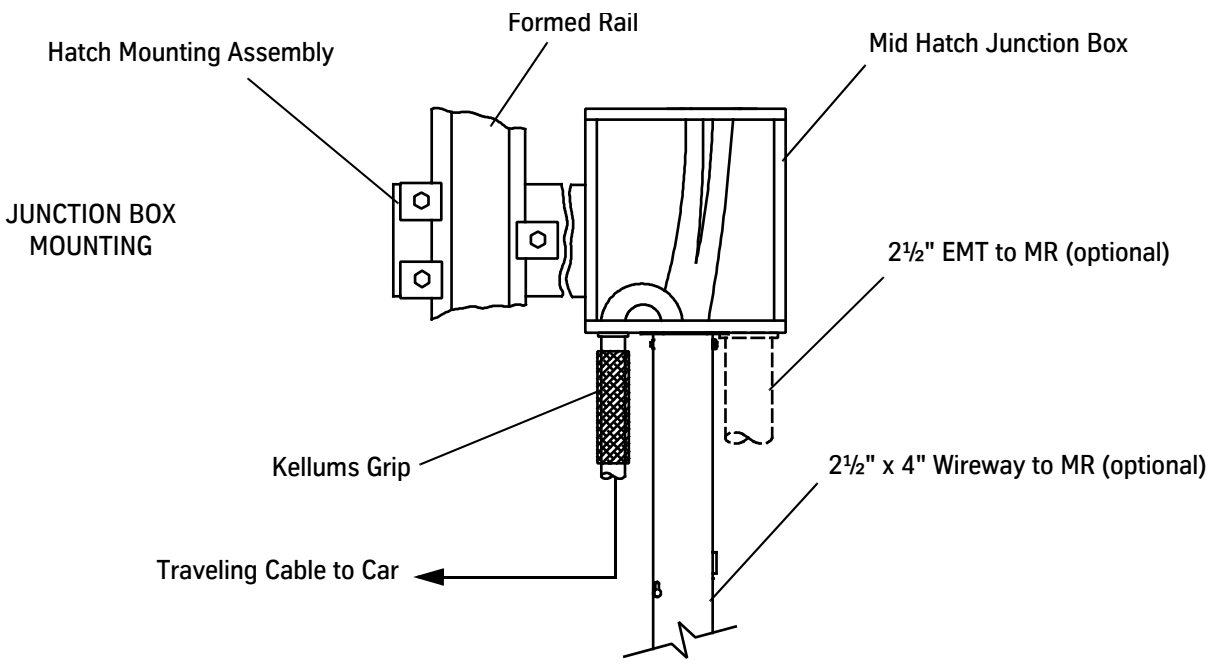
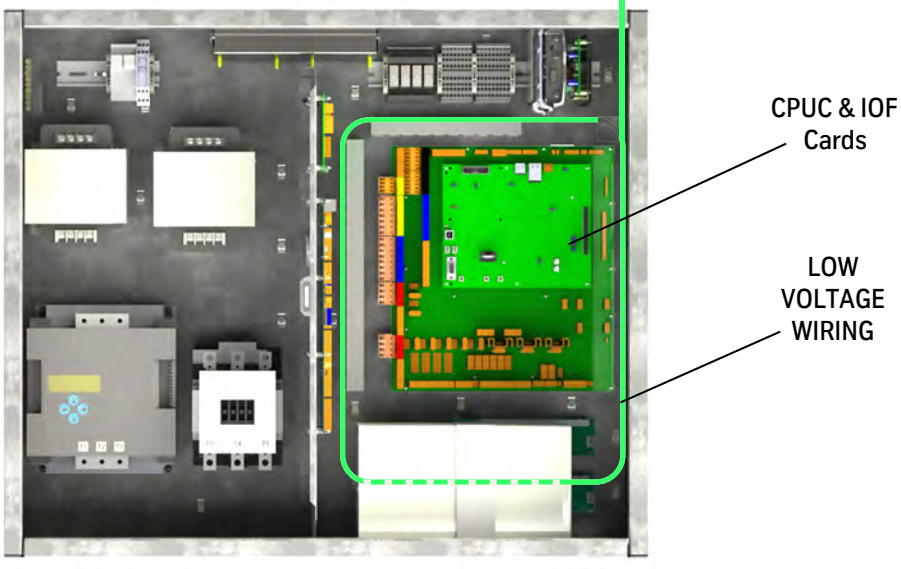


Figure 15 - Interlock Wiring Drawing - For Reference Only

Traveling Cable Installation



All traveling cable wires and hoistway wires must enter the controller cabinet on the right side where the CPUC and IOF Cards are located.



Hoistway Entrance Frames and Doors

Install the Entrance Frames and Hoistway Doors.
See the appropriate Vertical Express entrance component manuals for instructions.

Cab

See the *Installation Manual* for instructions.

The low pressure valve setting may need adjusting now that the car is complete.
For more information, see I-2/I-3 Valve Reference on page 5R-7.

Door Operator

Mount the door operator(s) and complete the external mechanical adjustments. See the appropriate Vertical Express door operator manuals and the job wiring diagrams for instructions.

For systems using Vertical Express door operators, which will be communicating to the controller via CAN, configure the CAN loading of the door operator at the time of installation. Typical installations should have loading resistors removed/disabled on the door operator. See the *Service Information* section of this manual for more information.

Selector Box Mounting and Alignment

1. Adjust the selector mounting bracket so that the selector box is centered side to side and vertically, parallel to the tape. Tighten the bracket to the stile or the crosshead. See Figure 16 on page 1-29 and Figure 17 on page 1-30.

2. Move the selector box toward the tape until all the guide halves just touch the tape. Tighten the selector box to the bracket.

3. Align the selector box with the selector tape so that the tape will go through the guides in a straight path. The guides must not bend the tape.

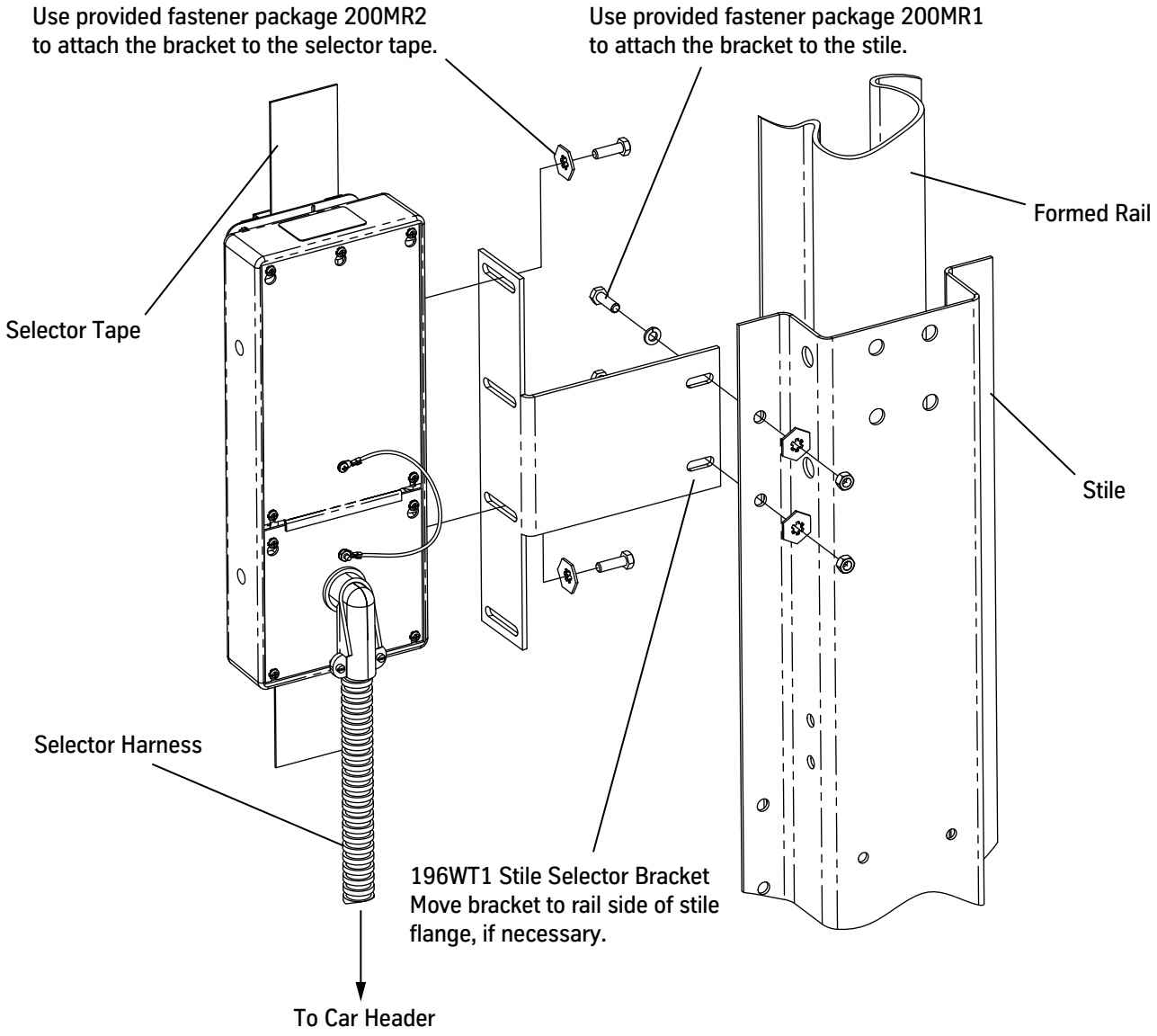
4. Align the auxiliary sensor assembly with the selector box alignment pins and the connector on the main sensor assembly.

5. Be careful not to cross-thread the screws, and turn screws into the box about four turns.

6. Press the auxiliary sensor assembly into place. Tighten the screws enough to compress the washers.

7. Verify the following and, if necessary, readjust:
   - The selector box is centered on the tape.
   - The guides are not deflecting the tape from front to back.
   - The guides are not pressing against the sides of the tape.

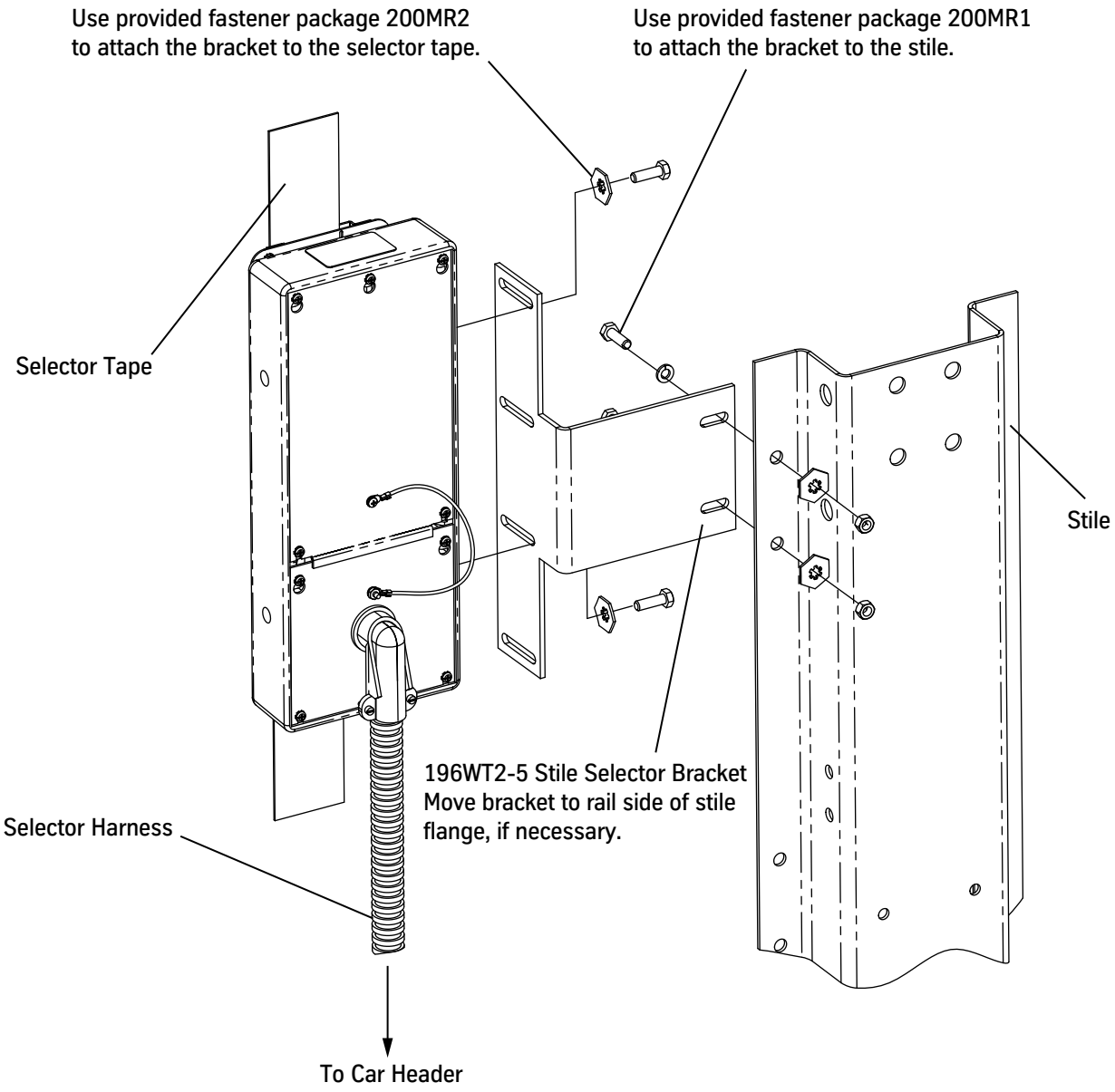
Formed Rail Selector Box



Notes:
1. For opposite hand mounting, move bracket to other side of selector box.
2. When car is at top of hoistway, align selector with tape. The sensor board position is adjustable.
3. Use 196WT1 stile selector bracket with formed rails.

Figure 16 - Formed Rail Selector Box and Tape Installation

T-Rail Selector Box



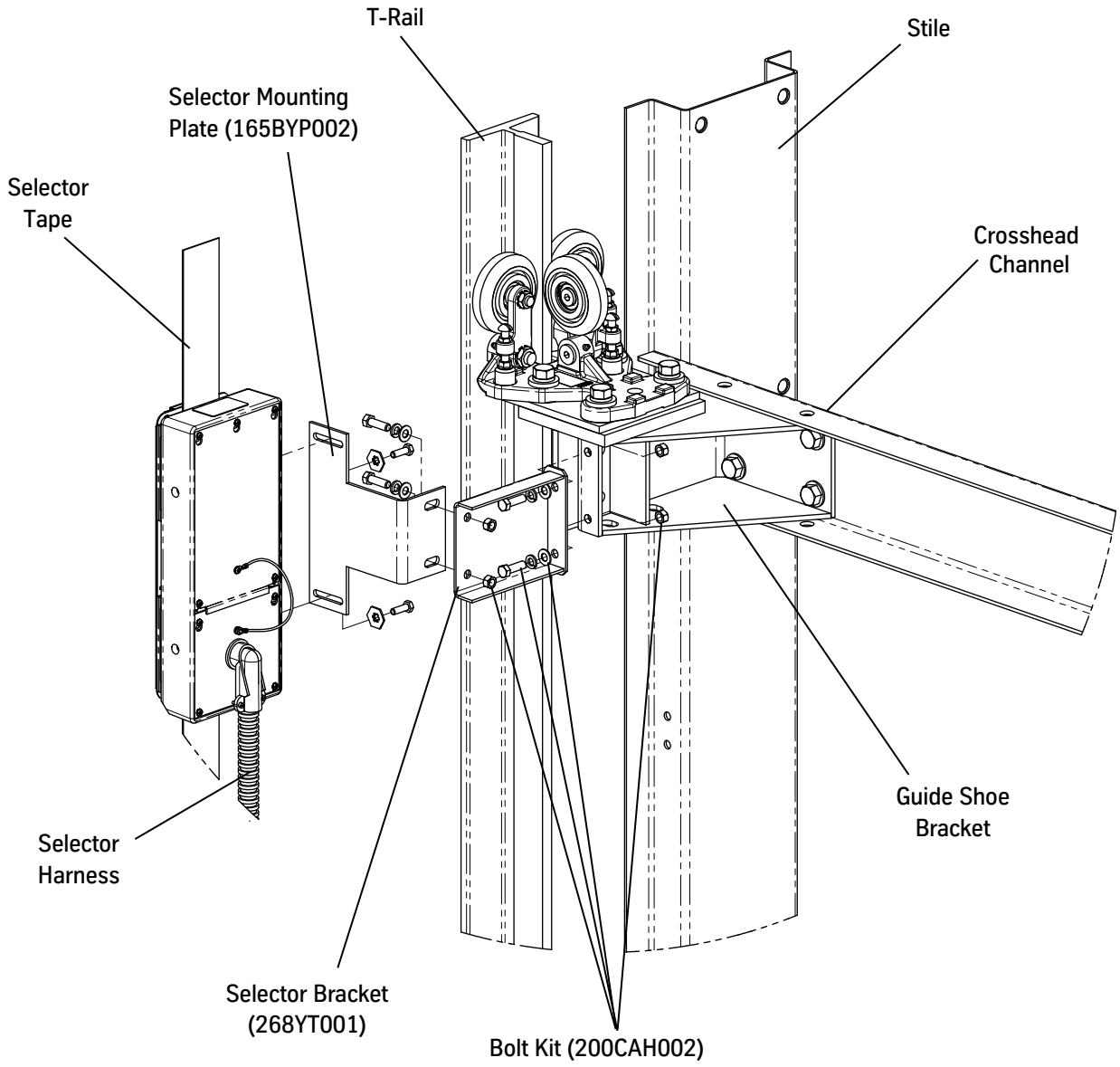
Notes:
1. For opposite hand mounting, move bracket to other side of selector box.
2. When car is at top of hoistway, align selector with tape. The sensor board position is adjustable.
3. Use 196WT2, 196WT3, 196WT4, and 196WT5 stile selector brackets with t-rails.

Figure 17 - T-Rail Selector Box and Tape Installation

Twin Post Selector Box

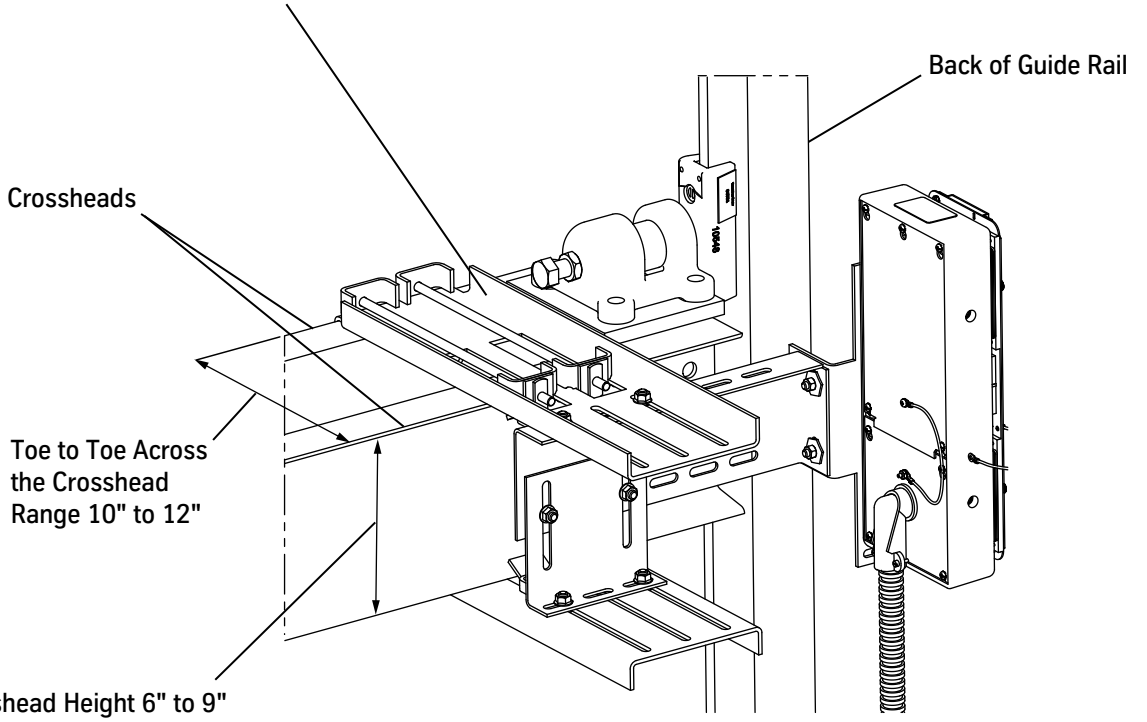
1. Align selector with tape when car is at top of hoistway, sensor board position is adjustable.
2. Selector bracket (268YT001) mounts to selector with fastener package (200MR2).

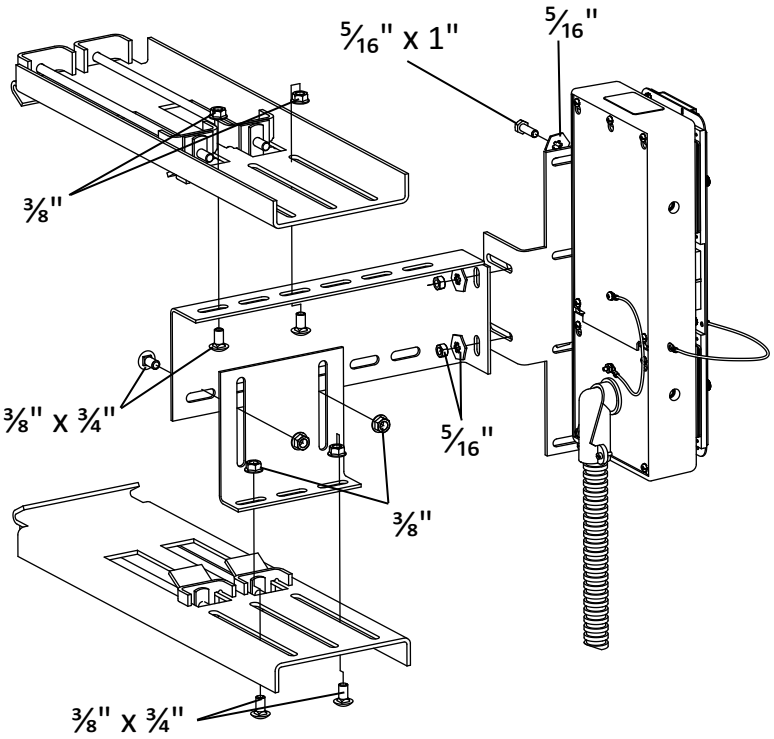
For ICON32, use the supplied bolts, washers, and lock washers.



Tape Selector Bolt Kit for Crosshead Mount (200BWY001)

Crosshead Mount
- Back of rail to this side of mount, 12" maximum
- Weld gussets provided for cases that crosshead mount does not fit.





Car Top Wiring

Required Material
- Door operator harness - front & rear, as required
- Auxiliary swing return harness, as required
- Fan and lights harness
- $2^1/_2$" wireway - rear doors only
- $^1/_2$" flex conduit and fittings
- Slotted end cap(s)
- Slotted cover plates

NOTE
- Slotted end caps and cover plates are shipped from Manufacturing in a wiring package.
- In all steps, leave any excess wire in the header.
- Unless stated otherwise, all of the following steps are for all jobs.

1. Insert the end of the selector harness through the end of the header and into the main swing return. Connect flex conduit to the car header end cap, or where the selector harness enters the car; leave wires disconnected in the swing return.
2. Connect the front door operator harness to the slotted cover plate, and pull the MTA connectors through the header and into the main swing return; leave disconnected in the swing return.
3. On jobs with selective doors, wire the rear door operator harness as follows:
   a. Begin in the rear header nearest the door operator, and connect the flex conduit from the rear door operator harness to the slotted cover plate.
   b. Pull the rear door operator harness out through the rear header cover plate to the $2^1/_2$" wireway that runs along the side of the car top.
   c. In the second hole of the $2^1/_2$" wireway, attach flex conduit onto the harness.
   d. In the opposite end of the $2^1/_2$" wireway cover, start at the second hole and attach the next section of flex conduit to the cover plate of the front header.
   e. Route the harness cable through the front header and pull the connectors into the main swing return; leave disconnected in the swing return.
4. Connect the wires from the door protective device to the door operator.
5. Install conduit, and pull lights and fan wiring to main swing return terminal strip.
6. Pull the front auxiliary swing return harness through the header and into the main swing return.

Car Top Wiring
(continued)

7. On jobs with selective doors, wire the rear auxiliary swing return harness as follows:
   a. Pull the rear auxiliary swing return harness through the rear header to the end cap nearest the $2^1/_2$" wireway that runs along the side of the car top.
   b. Attach the flex conduit to the rear header end cap and also to the first hole in the $2^1/_2$" wireway cover.
   c. Attach the flex conduit to the other end of the wireway cover and also to the end cap of the front header.
   d. Route the harness cable through the front header and into the main swing return.

Swing Return Wiring

The selector, the car top inspection station, and the hoistway access inputs (when provided) must be connected and functional to accomplish Controller Inspection or Car Top Inspection modes of operation.

1. Turn OFF, Lockout, and Tagout the cab lighting circuit.
2. Connect the traveling cable to the swing return rail terminals (RT). See the swing return terminal labels and the job wiring diagrams.

The LD-16 door operator has an adapter harness that wires the operator into the COP rail terminals (RT).

3. Connect the lights and fan wiring (L10, L10s, L20, and ground) to the swing return terminal strip.

Machine Room Wiring

Controller Card Connections

1. Turn OFF, Lockout and Tagout the mainline disconnect.
2. Make wiring connections in the Trades Access terminals.
3. Make wiring connections between the swing return (RT) and the elevator controller.
4. The various I/O will be assigned connections to the CNA Card(s), the IOF Card, the RT (rail terminals), and the DPIA Card. See the wiring diagrams and provided job specific Field Wiring Chart (940KW).

- Route the mainline power through the top left-hand corner of the controller.
- Route the hoistway wiring and traveling cable through the top right-hand corner of the controller.
- Group jobs only: Working from the right-hand side of the controllers, wire controller cross-connects between the controllers.

5. Wire the building power and other necessary connections (cab lighting, telephone, etc.) to the Trades Access terminals.

ADJUSTMENT SECTION

ADJUSTMENT SECTION

Contents

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Preliminary Adjustment

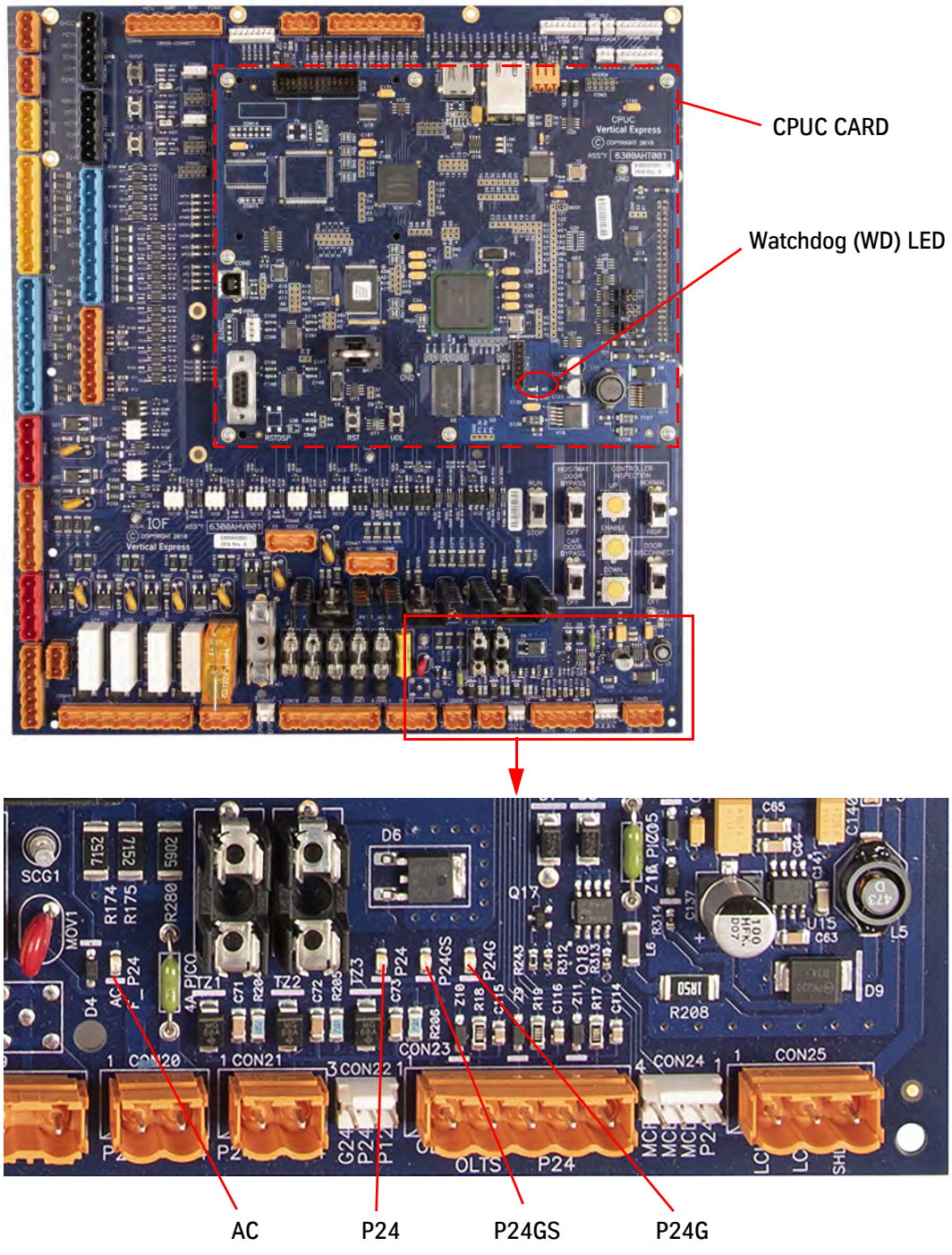
IMPORTANT! **Before beginning this section, the following must be completed:**

1. The hoistway and traveling cable wiring.
2. The selector tape installation.
3. All components and sub-systems prepared for Automatic Operation.
4. The Valve Low Pressure and Bypass are set.
5. The leveling speed is set to 10-12 FPM.

Remove Temporary Operation

1. Turn OFF, Lockout, and Tagout the mainline disconnect.
2. Place the controller on Inspection Service.
3. Unplug CON4 on the IOF Card.
4. Remove the temporary runbug.
5. Remove the following temporary orange jumpers:
   - Electronic Starters: 134 to MCC1 and MUTS to USS1.
   - Across the Line Starters: 134 to USS1 and MCC1.
   - Trades Access Panel: EPD2 to EPD2.
6. Connect the disconnect auxiliary contact between EPD1 and EPD2 terminals of the Trades Access Panel. This action prevents alternate power from powering up the controller with the disconnect in the OFF position.
7. Install plugs 9a, 19, 20, and 21 to corresponding connectors on the IOF Card.
8. Turn ON the mainline disconnect.
9. Confirm that the Watchdog (WD) LED on the CPUC is illuminated. See Figure 1 on page 2-4.
10. Confirm that the AC, P24, and P24G LEDs on the IOF Card are illuminated. See Figure 1.
11. Confirm that the P24GS LED on Power Supply Module (PSM) P24GS is illuminated. The P24GS fuse and PSM are located on DIN Rail above IOF Card.
12. Remove power.
13. Connect CON4 on the IOF Card.
14. Verify that the AC LED is still illuminated.

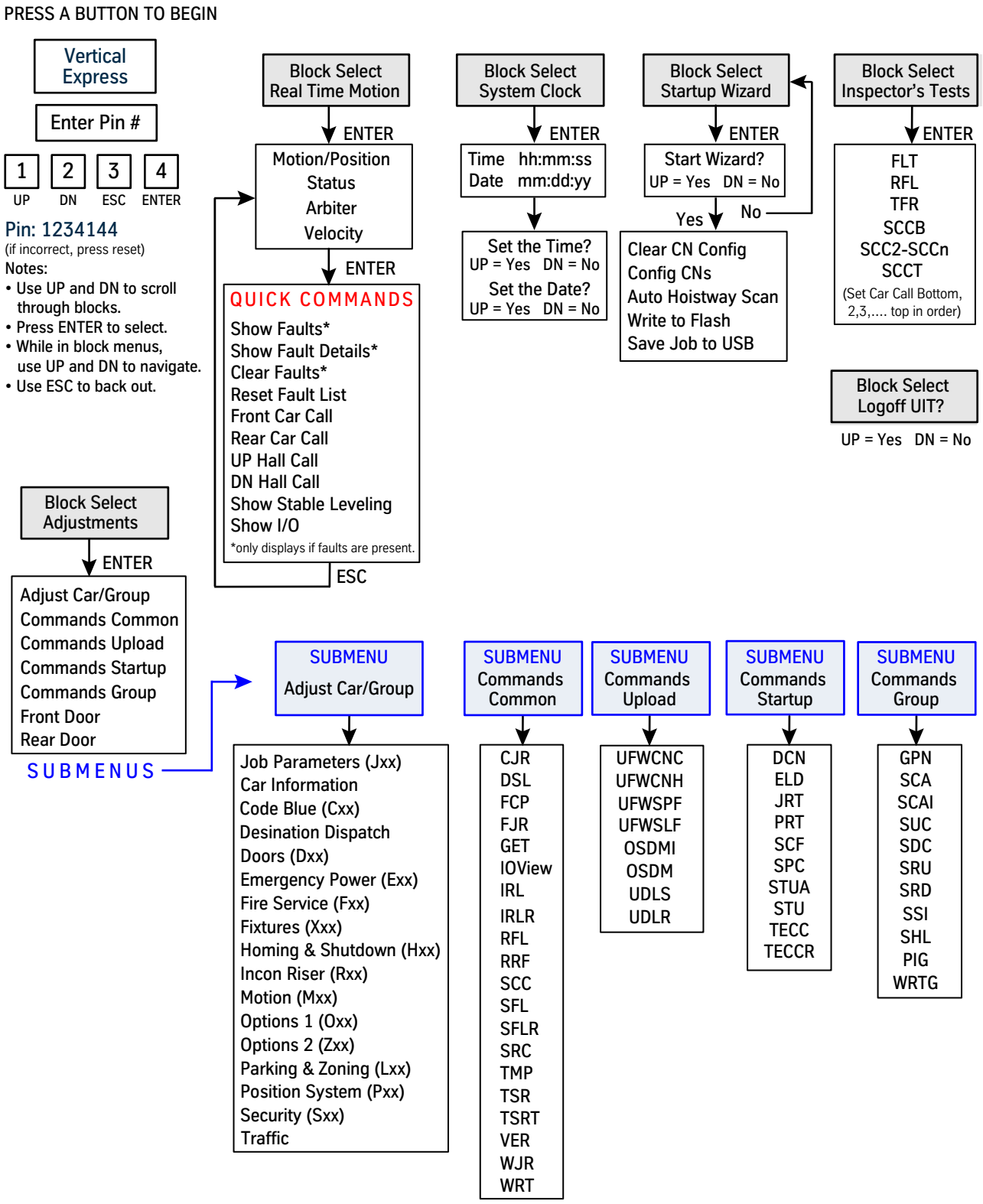
Remove Temporary Operation
(continued)



The P24GS fuse is not populated on the IOF Card. The fuse and PSM are located on the DIN Rail above the IOF Card.

Figure 1 - IOF Card Illuminated LED's

User Interface Tool (UIT) Menu Tree

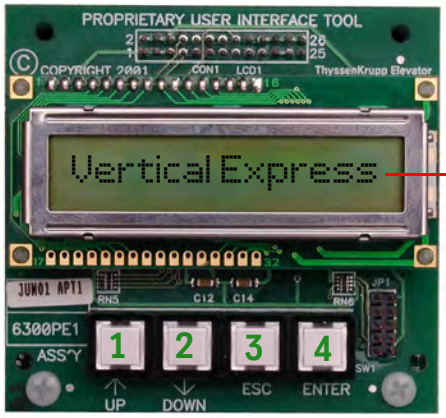


Software Verification Procedure

1. Verify that the Controller Inspection Switch in on INSP.

2. Press any button while **Vertical Express** is displayed in the UIT window, and enter the pin number - 1234144. See Figure 2.

NOTE If the wrong pin number is entered, continue to press **UP** until **Vertical Express** appears in the display window, then enter the pin number again.



The numbers on the buttons above are for illustration and are not printed on the actual UIT.

Figure 2 - UIT Main Menu Screen

3. Issue a VER Command.

   a. When **BLOCK SELECT ADJUSTMENTS** displays, press **ENTER**.

   b. Press **UP** until **ADJUST MENU COMMANDS COMMON** displays.

Software Verification Procedure
(continued)

c. Press **UP** until **VER** displays, press **ENTER**, and window displays this data:

v = version
x = version number
r = revision
y = revision number

- If any of the safety nodes are offline, the car is shutdown and a fault is logged.
- Background color removed for clarity.

IMPORTANT!

This controller contains software that is under AECO A17.7 Control. When replacing boards or functions involving this controlled software, verify that the replacement or updated software is the same version listed on the 580AMY marker attached to the controller.

Fill out the following chart. If any processor/node reports version zero (0), the device is not communicating; see *Troubleshooting*.

	Definition	Installed Software Version
CPUC	Controller Generic	
SP	Safety Processor	
NP	Normal Processor	
SELA	Selector Node A	
CWIL/DPIA	DPIA Node A	

Safety Processor Verification

1. Verify that the Controller Inspection Switch is on INSP.

2. Use the following information to verify that either the SP Good LED or the SP Bad LED is illuminated.
   - SP Good LED illuminated: Continue to CAN Node Address Assignment on page 2-8.
   - SP Bad LED illuminated: Continue to CAN Node Address Assignment on page 2-8.

     NOTE The SP Bad should be glowing until the safety nodes are online and indicate a ready to run condition. Configure the Safety Processor if the IOF Card was exchanged with another controller.
   - SP Good/SP Bad LEDs toggle back and forth: The Safety Processor is not configured. Continue to the next procedure.

Configure the Safety Processor

1. Find the Safety Processor (SP) Programming Jumper JP2 (located on the IOF Card next to **RSTSP**).
2. Place the SP Programming Jumper on pins 1 and 2.
3. From the UIT, press any button while **Vertical Express** is displayed, and enter the pin number - 1234144. If the wrong pin number is entered, continue to press **UP** until **Vertical Express** appears in the window, then enter the pin number again. See Figure 2 on page 2-6.
4. From the UIT, access **Block Select Adjustments** and press **ENTER**.
5. Press **UP** or **DOWN** to scroll to **Commands Startup**, and press **ENTER**.
6. Press **UP** or **DOWN** to scroll to the **SPC Command**, and press **ENTER**.
   - The UIT should display **SP Config Complete**.
   - If the SP Programming Jumper is in the wrong position or the jumper shunt is bad, the UIT will return **SP Programming Jumper Not Installed**. Correct the jumper, and press **ENTER** again.
7. Place the SP Programming Jumper on pins 2 and 3.
8. Press **RST** on the CPUC Card. Once the controller recovers, repeat the steps to access the main menu screen.

At this point, the Safety Processor is configured and either the SP Good or the SP Bad LED should be illuminated.

NEW The SP BAD LED will remain lit until the safety nodes are online and indicate a ready to run condition.

CAN Node Address Assignment

Overview CAN nodes must be correctly addressed by jumpers in order to be properly identified by the controller software for I/O assignment. The CAN Node Address Assignment procedure uses the DCN Command to display each of the possible nodes (0-11), and this information is recorded so that the node addressing is set correctly for each node. CAN resistive loading is checked and corrected as necessary to ensure stable communications to all nodes. The nodes are then configured to prepare for Automatic Operation.

CAN nodes may not indicate ONLINE until they have been successfully configured (TECC).

CAN Node Address Assignment
(continued)

1. Have some paper and pen/pencil ready to record the following data for future use: Node ID, SmartName, online status, and channel.

2. Access the UIT.

3. Navigate to **BLOCK SELECT ADJUSTMENTS,** and press **ENTER**.

4. Navigate to **ADJUST MENU COMMANDS START UP,** and press **ENTER**.

5. After **DCN** displays, press **ENTER**.

6. **CN Node = 0** displays. Press **UP** or **DOWN** to select the proper CN Node ID, and press **ENTER**.

7. When **Ping a Port?** displays, press **DOWN**.

CAN Node Address Assignment
(continued)

The CN Node ID (selected from step 6) displays, followed by its SmartName. The DCN information will begin to scroll from left to right on both lines at different rates, see image below. Pressing **UP** or **DOWN** will pause the scroll until the **UP** or **DOWN** is pressed again.

Top Line Display	
CN:	The node ID
CNA-	SmartName
Online:	Online status: 0 = Offline, 1 = Online
Pcks:	# of received data packets
CH:	CAN channel from which the node is assigned to communicate: 2 = Car, 3 = Hall
V:	Software version
uP18Fxxxx	microprocessor version for that node
SP:	# of shared ports
TP:	# of total ports assigned to the node
Bottom Line Display	
Port assignments for ports 0 (zero) through 15 = the numbers represent the port number of the I/O map the port is to use, and all unused ports for a node receive a port assignment of 255.	
CNA Cards always have 12 total ports assigned to them.	

8. Record the CN, the SmartName, and the CH information.

NOTE ICON32 Controllers should have the MODCTRL1 node on CH: 2 — the main interface node for the typical job mounted on the center divider of the controller.

9. Press **ESC**.

10. Repeat step 6 through step 9 for each node 0-11.

11. Verify the addressing jumpers for any CAN Node Card used in the system. See Table 1 on page 6-11.

NOTE A CAN node may be CN, CNA, or any future CAN Node Card. When the jumpers are populated on the card, the jumpers assigned functions are the same across the card assemblies.

CAN Node Address Assignment
(continued)

CN Card Node Addressing				
	JP7	JP6	JP5	JP4
CN Card 0	OFF	OFF	OFF	OFF
CN Card 1	OFF	OFF	OFF	ON
CN Card 2	OFF	OFF	ON	OFF
CN Card 3	OFF	OFF	ON	ON
CN Card 4	OFF	ON	OFF	OFF
CN Card 5	OFF	ON	OFF	ON
CN Card 6	OFF	ON	ON	OFF
CN Card 7	OFF	ON	ON	ON
CN Card 8	ON	OFF	OFF	OFF
CN Card 9	ON	OFF	OFF	ON
CN Card 10	ON	OFF	ON	OFF
CN Card 11	ON	OFF	ON	ON

Table 1 - CN Card Node Addressing

12. Verify that JP14 is ON pins 1-2.

13. Verify that JP8 is OFF.

14. Confirm any CAN node designated "CH:2" is wired to CCH/CCL. See job prints.

15. Confirm any CAN node designated "CH:3" is wired to HC1H/HC1L. See the job prints.

Verify Proper Resistive Loading for the CAN Channels

Perform this procedure each time a controller or a CAN node is added to the CAN channels.

1. Turn OFF, Lockout, and Tagout the mainline disconnect. All cars in the group must be de-energized to correctly measure resistance on the Hall and Group CAN channels.

2. Verify that all cars in the group are cross-connected as follows:

   a. CON40 on the IOF, RCH/RCL, P24XC, and G24.

   HC1H/HC1L is only necessary if that channel has been assigned node(s), see CAN Node Address Assignment procedure.

   b. Fire Service I/O from the Trades Access Panel.

   c. All Group I/O: Hall Calls, Fire Service Inputs, Security, etc.

   d. EPNP - only if alternate power is used for Emergency Power. Do not cross-connect EPNP for battery lowering cars.

Verify Proper Resistive Loading
(continued)

3. Measure the resistive loading for the Car CAN channel, between CCH and CCL.
   a. Measure from CON2 or CON3 on the IOF Card (located in the controller) across CCH and CCL. The typical measurement is 60 ohms +/-3 ohms.
   b. If the resistive loading is incorrect, see CAN Channel Resistive Loading Verification on page 4-7.
4. Repeat step 3 for each controller.

WARNING **Remove all power from connected controllers before performing any Group and Hall CAN channel resistance checks.**

5. Perform the following appropriate procedure. If either procedure does not apply to the job, continue to step 6.

- If the controller is connected to other controllers (grouped):
  a. Remove power from all controllers in the group.
  b. Measure resistance, as if the systems were in operation, between RCH and RCL (Group CAN Channel) with all control system CAN communication connections connected.
  c. Check the resistance from any controller in the group, across RCH and RCL from CON40 of the IOF Card. The typical measurement is 60 ohms +/-3 ohms.
  d. If the resistive loading is incorrect, see CAN Channel Resistive Loading Verification on page 4-7.

- If the Hall CAN channel is used and the controller is not connected to other controllers (grouped):
  a. Remove power from all controllers in the group.
  b. Measure the resistance, as if the systems were in operation, between HC1H and HC1L (Hall CAN Channel) with all control system CAN communication connections connected.
  c. Check the resistance from each connected controller in the group, across HC1H and HC1L from CON1 of the IOF Card. The typical measurement is 60 ohms +/-3 ohms.
  d. If the resistive loading is incorrect, see CAN Channel Resistive Loading Verification on page 4-7.

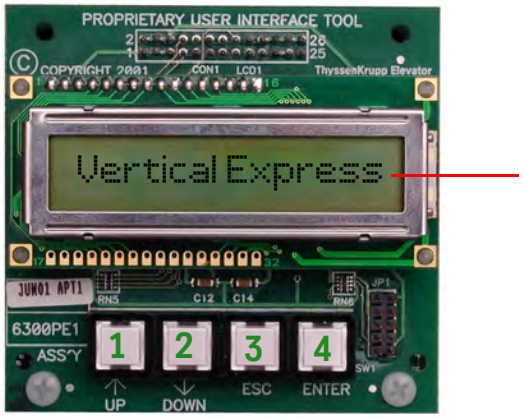
6. Restore power, return elevator(s) to service, and verify proper operation.

CAN Node Configuration via the Startup Wizard

The Startup Wizard will guide the user through the set up, configure all CAN Nodes, execute a hoistway scan, and save parameter changes.

1. Press any button while **Vertical Express** is displayed in the UIT window, and enter the pin number - 1234144. See Figure 3.

NOTE If the wrong pin number is entered, continue to press **UP** until **Vertical Express** appears in the display window, then enter the pin number again.



The numbers on the buttons above are for illustration and are not printed on the actual UIT.

Figure 3 - UIT Main Menu Screen

2. Access the Startup Wizard.
   a. Press **UP** or **DOWN** until **Block Select Startup Wizard** displays, and then press **ENTER**.
   b. When **Start Wizard?** displays, press **UP**.
3. Issue a Clear CN Config Command.
   a. When **Clear CN Config?** displays, press **ENTER**.
   b. When **TECCR only allowed from the riser Master** displays, press **ENTER** (NEXT TEST).
4. Configure the CN's.
   a. When **Config CN** displays, press **ENTER**.
   b. When **TECCR only allowed from the riser Master** displays, press **ENTER** (NEXT TEST).
5. When **Auto Hoistway Scan?** displays, displays, press **UP** to skip.
6. Save the parameters.
   a. When Write to Flash displays, press **ENTER**.
   b. When Write Complete displays, press **ESC**.

I/O and Safety String Checkout

1. Verify the following:
   a. The controller stop switch is in the STOP position.
   b. The controller inspection switch is in the NORMAL position.
   c. The car top inspection switch is in the INSP position.
   d. The car doors are closed, and the Car Door Bypass switch on the IOF is in the OFF position.
   e. The hoistway doors are closed, and the Hoistway Door Bypass switch on the IOF is in the OFF position.
   f. All Emergency Protective Devices (EPD) in the safety string are in the ready to run position.
   g. All in-car stop switches are in the Run position.
   h. All temporary jumpers are removed from the system.
   i. No jumpers are installed on the IOF Card, CON46 or CON47.

The safety processor system is configured by manufacturing and the CAN nodes should, upon power up, result in an illuminated SPGOOD LED. If not, SPGOOD and SPBAD LED's will toggle and a 1920 Fault is registered. For details, see Configure the Safety Processor on page 2-8.

2. Turn ON the mainline disconnect.
3. Place the controller stop switch in the RUN position.
4. Check for 120VAC from Ground to:
   - IOF CON4-1 (CDCR)
   - IOF CON4-2 (CDCF)
   - IOF CON4-3 (121)
   - IOF CON4-4 (CST)
   - IOF CON8-1 (131)

Any open interlock circuit will cause a power loss at 121 (IOF CON4-3) via SAFCPU or SAFSP. See the job wiring diagrams to troubleshoot any missing voltages.

5. Scroll to Real Time Motion > ENTER > Quick Commands, then scroll to Show I/O.

I/O and Safety String Checkout
(continued)

6. Verify the I/O states per Table 2 on page 2-16. If the I/O states do not match the chart, use the job wiring diagrams for the following:
   a. If an optional I/O is not as indicated, and not used by the system, ignore it.
   b. Verify that the safety string is made.
   c. Verify that the door circuits (interlock and gate switches) are made.
   d. Verify that the car stop switch circuit is made.

EPNP, PRSW, OLTO are required to be in the active state to permit expected operation.

- EPNP may prohibit up runs.
- OLTO will shut the car down.
- PRSW will prevent a down run.

7. Press **ENTER**.
8. Verify the I/O Port # and Correct I/O Pattern per Table 2 on page 2-16.
9. Confirm that the SPGOOD, NPGOOD, and PLDGOOD LED's (located on the IOF Card) are illuminated (green LED's).
   - If the above LED's are illuminated, proceed to the next section.
   - If the above LED's are not illuminated, and the corresponding red LED's (NPBAD, SPBAD, or PLDBAD) are illuminated, perform the following steps:
   a. Scroll to Real Time Motion.
   b. Press **ENTER**, and then press **ENTER** a second time.
   c. Press **UP** or **DOWN** until Reset Faults displays.
   d. Press **ENTER**.
   e. Press **UP** or **DOWN** until Clear Faults displays.
   f. Press **ENTER**.
   g. Press **UP** until **Show Faults** displays.
   h. Correct issues causing critical faults. For details, see *Diagnostics* section.
   i. Once the SPGOOD LED is illuminated, proceed to the next section.

I/O and Safety String Checkout
(continued)

Port #	Correct I/O Pattern	I/O Number							
		1	2	3	4	5	6	7	8
1	01000101	**INCN**	**INCNM**	**INCNU**	**INCND**	**CDBM**	**CDBM2**	**HDBM**	**HDBM2**
2	00000000	**BYCST**	**BYHA**	**BYHAR**	**BYHAB**	**BYHAT**	**BYCDB**	**BYHDB**	**BYDZ**
3	11111111	**IB**	**IT**	**IF**	**IR**	**CB**	**CT**	**CF**	**CR**
4	11111111	**SAFSPM**	**SAFCPU**	**SAFCPM**	**SAFE**	**TSRCPU**	**CDCF**	**CDCR**	**CST**
5	010000--	**MCC1**	**MCC2**	**UFS**	**USS**	**DFS**	**DSS**	---	---
6	010000--	**MCC1M**	**MCC2M**	**UFSM**	**USSM**	**DFSM**	**DSSM**	---	---
7	0001-101	*MUTS*	*MCF*	*MCE*	*MCD*	---	*PRSW*	*OLTS*	*OLTO*
8	100-0100	*BLOM*	*BLO*	*CHKBLO*	---	**CHKTSR**	**CHKDS**	**TSRCPM**	**NTSNPM**
10	00000001	**FSM**	**FSX**	**FSE**	**FST**	*FSSR*	*STBC*	*EPW*	**EPNP**
17	00000101	**INCTM**	**INCTU**	**INCTD**	**INCTU2**	**INCTD2**	**INCT**	*INHA*	*INHAM*

LEGEND
'---' = Irrelevant
BOLD = I/O Always Present
I/O State = INACTIVE
I/O State = ACTIVE
ITALICIZED = Optional I/O

Table 2 - I/O Port # and I/O Correct Pattern
Ready to Run - Car Top Inspection

- SAFE, CDCF, CDCR, CST and all interlock inputs (port 3) must be active with no critical controller faults in order for SAFSPM, SAFCPU, SAFCPM, and TSRCPU to be active.
- Any optional I/O present in the job software must be in the indicated state for the Correct I/O Pattern column.
- MCC2, MCC2M = Only seen on jobs with electronic or Wye-Delta (2 contactor) starting.
- MUTS, MCF = Only seen on jobs with electronic starting.
- MCE, MCD = Only seen on jobs with across-the-line (1 contactor) starting.
- PRSW = Only seen on jobs equipped with a low pressure switch.
- OLTS, OLTO = Only seen on jobs equipped with viscosity control thermostats.
- INHA, INHAM = Only seen on jobs with hoistway access.
- Bit Patterns provided are for jobs with electronic starting and hoistway access.
- I/O locations marked with an X are either unassigned or have a signal assigned whose status is unimportant at this point. If required, refer to the job's Car I/O Assignment Sheet.

Troubleshooting I/O Issues

1. Check the controller fault log for applicable faults.
2. If Ports 1 - 10 all display zeros, both the Safety Processor and the NTSD Processor have mismatched I/O with the CPU.
   a. Verify F1 on the IOF Card is good.
   b. Reload the controller generic files and the job configuration files.
   c. Configure the Safety Processor. See page 2-8.
   d. Perform the following from the Startup Wizard.
      - Clear CN Config?
      - Config CN.
3. If the SP and NP I/O mismatch faults still exist, then communication is faulty between the IOF and the CPUC Cards. See the *Troubleshooting* section for more help.

Car Top Inspection Operation

1. Verify there are no jumpers installed that interfere with car or hall door interlocks.
2. Ensure that the car door bypass and hoistway door bypass switches on the IOF are in the OFF position.
3. Place the car top stop switch in the STOP position.
4. Confirm that the car top inspection switch is in the INSP position.
5. Ensure that the car will not run with the car top stop switch in the STOP position.
6. Place the car top RUN/STOP switch in the RUN position.
7. Verify that the car will only run Up when **UP** and **ENABLE** are pressed.
8. Confirm that the car will only run Down when **DOWN** and **ENABLE** are pressed.
9. Ensure that the car will not run with the car door or any hoistway door open.
10. Verify that the car will not run when any contact in the safety circuit is opened (pit stop switch, final limits, fireman's stop, emergency exit, car stop switch). See the Safety Circuit page in the job wiring diagrams.
11. Leave the AUTO/INSP switch in the INSP position.

Selector Tape Magnet Installation

Selector Tape and Box Inspection

1. Inspect and clean the selector tape. Use a wire brush to remove cement, drywall, mud, etc., and use fine sandpaper (400 grit) to remove nicks and burrs.
2. After cleaning, wipe down the tape with a clean rag. If the tape cannot be completely cleaned, it MUST be replaced.
3. Inspect the selector box for damage or defects. The guides must be free of dirt, not binding on the tape, or extremely loose.

Magnet Placement

- Floor level magnets are the only magnets placed on the front (or car side) of the tape. See Figure 6 on page 2-22.
- Slowdown and directional magnets are placed on the side of the tape facing away from the car (back side). See Figure 4 on page 2-20 and Figure 5 on page 2-21.
- Handed references are noted as if facing the tape from the car.
- The magnets have their magnetic south marked with a yellow stripe. The yellow-striped south side faces out and should be visible for all tape magnets except the top floor slowdown (NTSD) magnets.

Top Terminal Slowdown & Directional Limits

1. Position the car so that it is level and at the top landing.

CAUTION **In the next step, a metal scribe will damage the tape.**

2. Use a marker that will not damage the tape, and mark the tape at the top of the selector box. See Figure 4 on page 2-20.
3. Move the car out of the way to provide access for installation of the magnets.
4. Determine how many initial terminal slowdown magnets are to be installed.
5. Start placement of the bottom edge of the first terminal slowdown magnet "T" inches below the top of the selector box mark. Stack the determined number of magnets up toward the "Top of Tape Selector Box"—line the magnets end to end with the north polarity facing out (black side out).
6. Start placement of the directional limit magnets $6^{1}/_{4}$" below the selector box mark. Place two 8" magnets end to end with the south polarity facing out (yellow side out).

IMPORTANT! **The magnets must be extended up the hoistway far enough so that the selector sensors cannot run off of the magnets at the extreme limit of travel up past the top floor. See Figure 8 on page 2-24.**

Bottom Terminal Slowdown & Directional Limits

1. Position the car so that it is level and at the bottom landing.

Magnet Placement
(continued)

CAUTION **In the next step, a metal scribe will damage the tape.**

2. Use a marker that will not damage the tape, and mark the tape at the top of the selector box. See Figure 5 on page 2-21.
3. Move the car out of the way to provide access for installation of the magnets.
4. Determine how many initial terminal slowdown magnets are to be installed.
5. Start placement of the top edge of the first terminal slowdown magnet "D" inches above the top of the selector box mark. Place the magnets end to end with the south polarity facing out (yellow side out).
6. Start placement of the directional limit magnets $9^{1}/_{4}$" below the top of the selector box mark. Place two 8" magnets end to end with the south polarity facing out (yellow side out).

IMPORTANT! **The magnets must be extended up the hoistway far enough so that the selector sensors cannot run off of the magnets at the extreme limit of travel up past the top floor. See Figure 8 on page 2-24.**

Floor Landing and Close Floor Leveling Magnet Installation

1. Position the car so that it is level and at the top landing.

CAUTION **In the next step, a metal scribe will damage the tape.**

2. Use a marker that will not damage the tape, and mark the tape at the top of the selector box. See the following figures for this procedure:

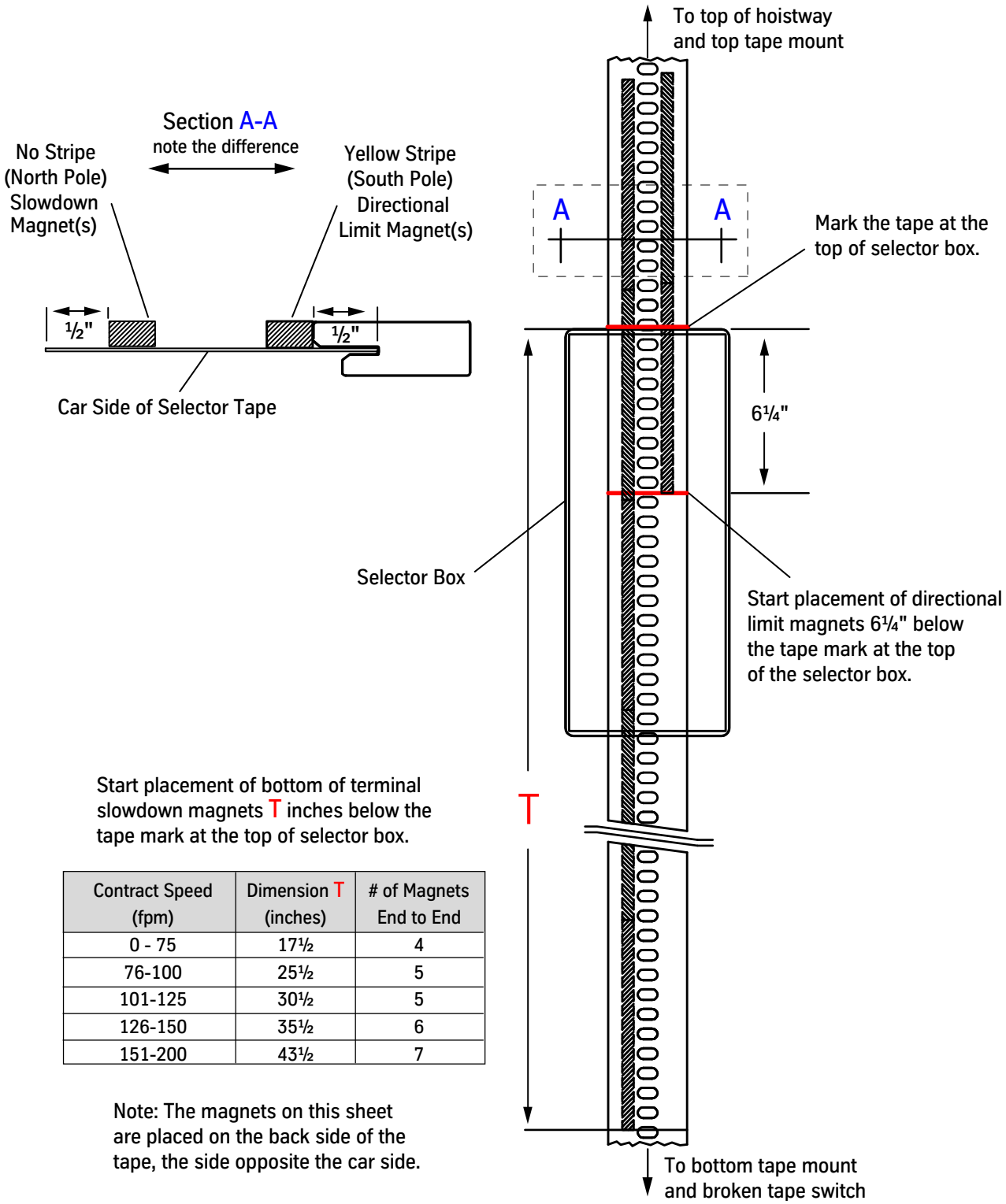
   Floor Landing - See Figure 6 on page 2-22.

   Close Floor - See Figure 7 on page 2-23.
3. Move the car out of the way to provide access for installation of the magnets.
4. Position the template (814CH001) on the tape as follows:
   a. The template top at the top of the selector box mark on the tape.
   b. The sides of the template with the sides of the tape.
5. Place and center an 8" magnet in the right-hand slot of the template, and ensure that the yellow stripe of the magnet (south pole) is facing out.

NOTE A close floor is defined as a floor with 4"- 16" of travel to the floor above it. The template can be lifted over the nearby magnet to allow the installation of the "close landing" magnet.

6. After installation, verify the position of the magnet.
   a. The magnet top is $3^{3}/_{4}$" below the top of the selector box mark.
   b. The magnet side is $^{1}/_{2}$" from the edge of the tape side.
7. Repeat the above steps for each floor—except when performing step 5 (above), a close floor's 8" magnet would be placed on the left-hand slot of the template with the yellow stripe of the magnet (south pole) facing out. The top landing always uses the right-hand slot of the template.

Magnet Placement
(continued)



Start placement of bottom of terminal slowdown magnets T inches below the tape mark at the top of selector box.

Contract Speed (fpm)	Dimension T (inches)	# of Magnets End to End
0 - 75	17½	4
76-100	25½	5
101-125	30½	5
126-150	35½	6
151-200	43½	7

Note: The magnets on this sheet are placed on the back side of the tape, the side opposite the car side.

Figure 4 - Top Terminal Slowdown and Directional Limits

Magnet Placement
(continued)

Start placement of top of terminal slowdown magnets D inches above the tape mark at the top of selector box.

Contract Speed (fpm)	Dimension D (inches)	# of Magnets End to End
0 - 75	start 1" below mark	3
76-100	5	4
101-125	10	5
126-150	15	5
151-200	23	6

Note: The magnets on this sheet are placed on the back side of the tape, the side opposite the car side.

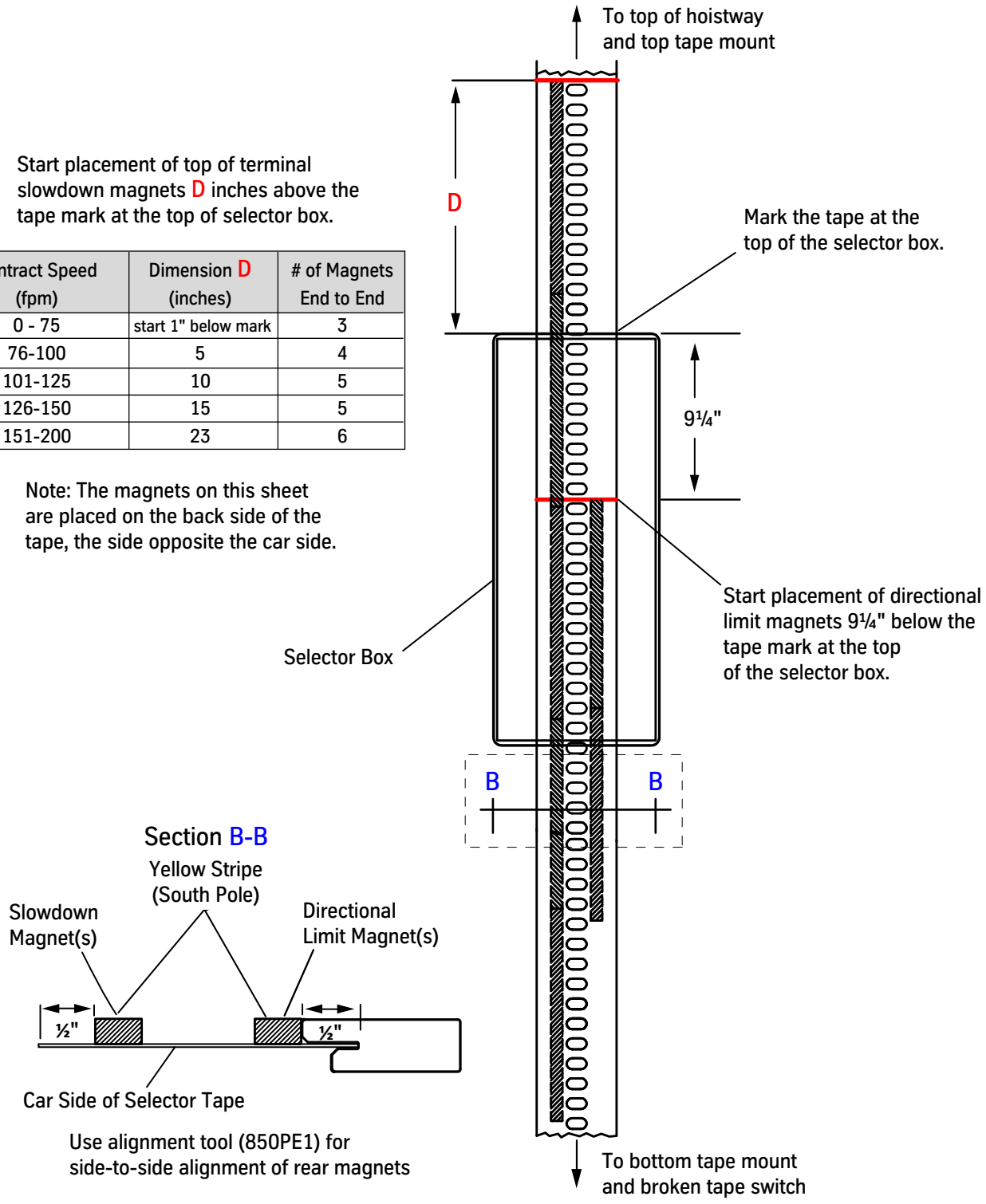


Figure 5 - Bottom Terminal Slowdown and Directional Limits

Magnet Placement
(continued)

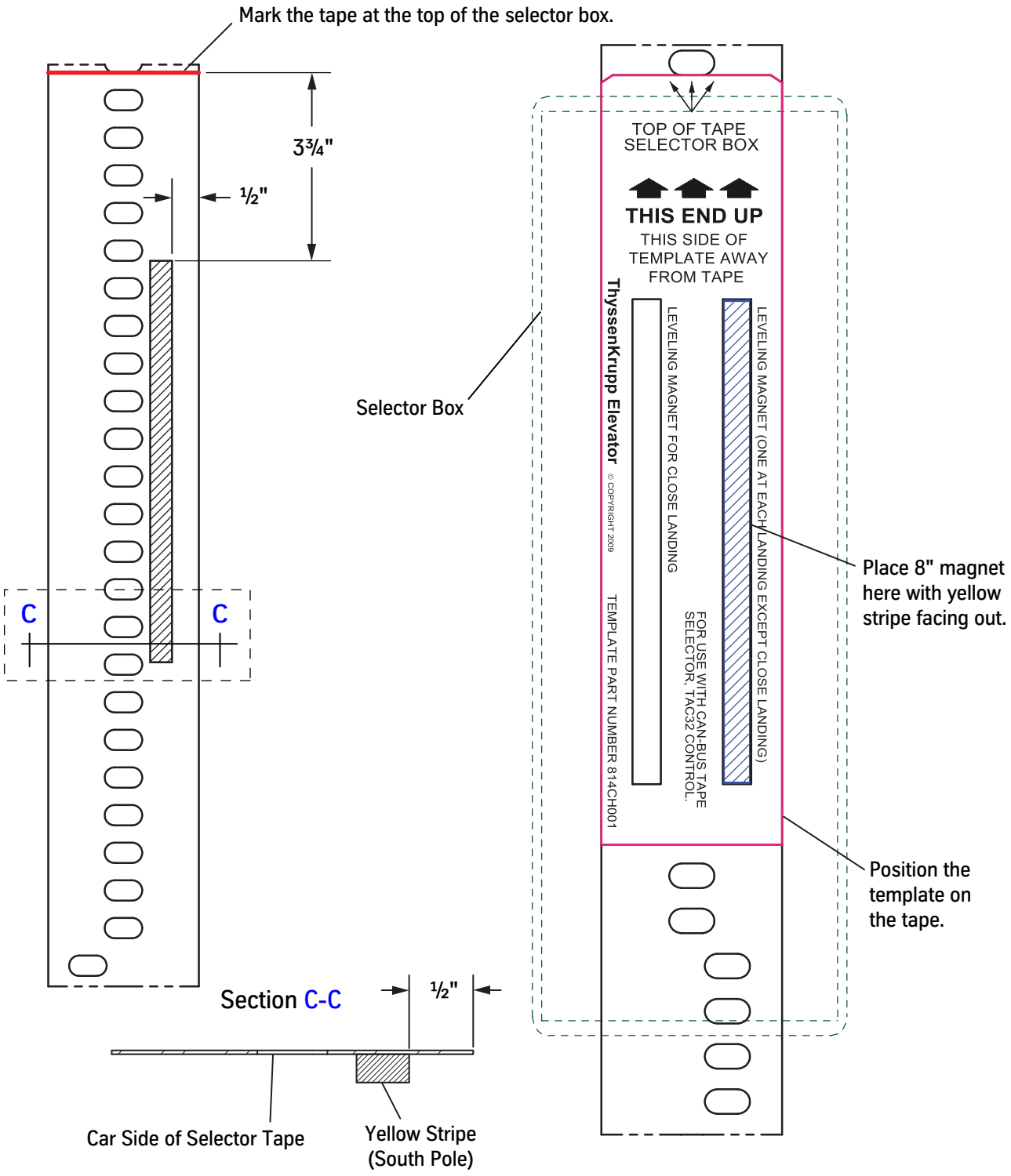


Figure 6 - Floor Landing Leveling Magnet Installation

Magnet Placement
(continued)

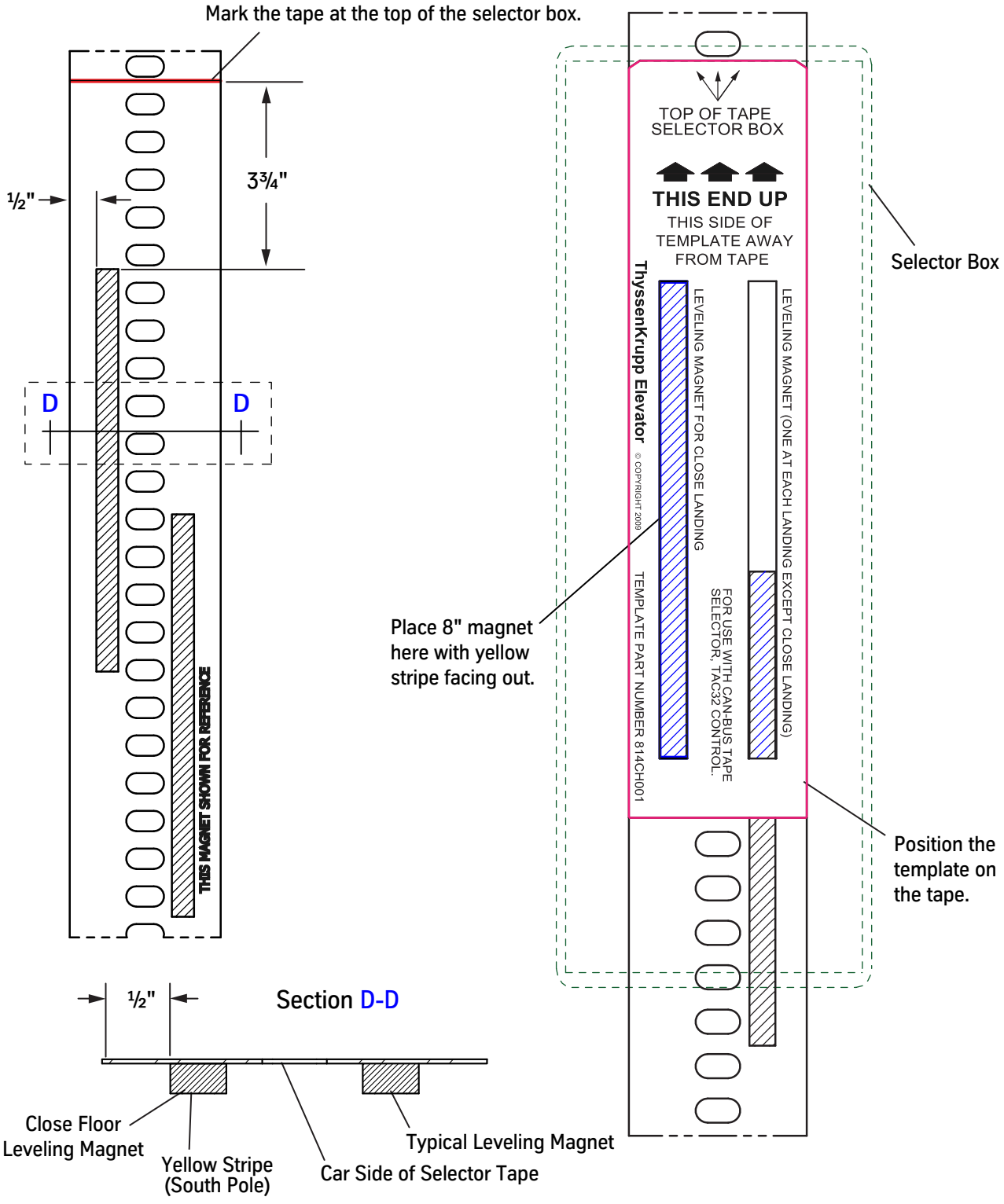


Figure 7 - Close Floor Leveling Magnet Installation

Magnet Placement
(continued)

Requirement: The selector cannot be moved past the Terminal Slowdown or the Directional Limit at the extreme limits of car travel.

1. Add additional magnets to the ends of Terminal Slowdown & Directional Limit Magnets.
2. Evenly divide additional magnets (from the chart) between each track of magnets.
3. Stack the magnets end to end. See End To End Stacking Gap (right).

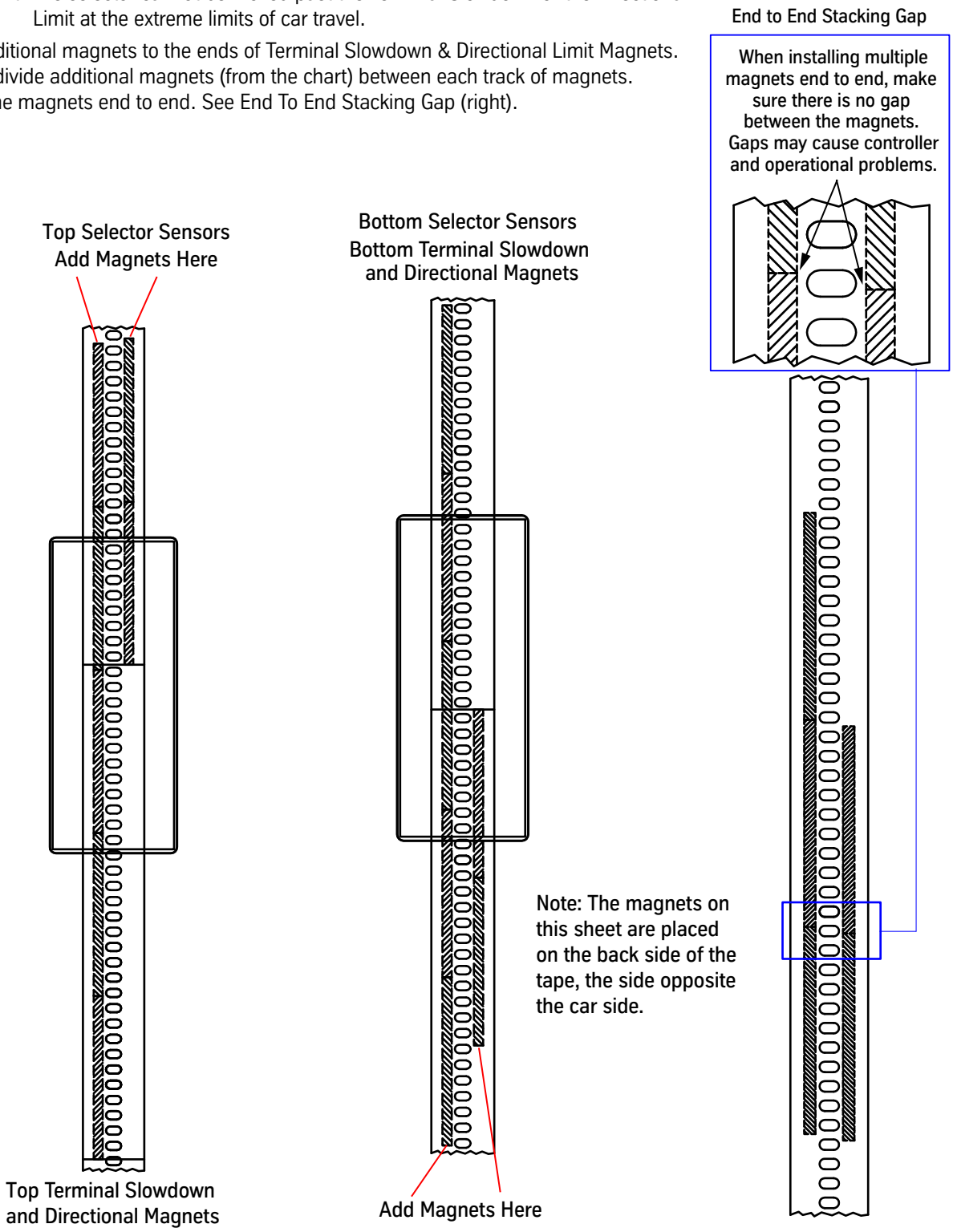


Figure 8 - Extreme Travel Limit Magnet Installation

Preliminary Setup for Automatic Operation

IMPORTANT!

Before starting a hoistway setup, complete the following items:

1. Door operator adjustments. See the appropriate door operator component manual for this job.
2. Mechanical setup.
3. Gate switch (CDCF, CDCR) and limit setting (DOL, DCL - DOL and DCL are always required for Automatic Operation, regardless of door operator type).
4. Card configuration and setup.
5. Verify that the car stops on the directional magnets 1 - $1^1/_2$" out of the terminal landings.

NOTE

- Before the car can run on Automatic Operation, the selector must scan (count) the number of selector tape holes between floors.
- Any time a leveling magnet or directional limit magnet is moved, the hoistway must be scanned again.

Hoistway Scan Through the Startup Wizard

The Startup Wizard sets up and configures all CAN nodes, performs a hoistway scan, and executes job archive functions. Upon successful completion, the system will be on Automatic Operation and ready for final valve adjustments. Previously, the CAN nodes were configured. It is not necessary to duplicate those steps at this time, unless there was incorrect CAN loading or bad nodes at the time of the original configuration. It will not cause any harm to repeat the steps, and the following procedure will complete the hoistway scan.

1. From Inspection Operation, place the car at, or above, the first landing.
2. Access the UIT.
3. Set the close floor adjustment. A close floor is defined as a floor with 4"- 16" of travel to the floor above it.
   a. If no close floor is present on this job, continue to step 4.
   b. If system has a close floor, set P12=1.
      Block Select Adjustments> Adjust Car/Group> Position System> P12.
4. Place all switches in the RUN or AUTOMATIC position (Pit Stop, Fireman's Stop, Emergency Exit, SOS, Car Top Inspection Stop, etc.).
5. On the IOF Card, place the following switches in the Ready To Run on DOOR DISCONNECT position:
   - Car Door Bypass: OFF (DN)
   - Hoistway Door Bypass: OFF (DN)
   - Stop Switch: RUN (UP)
   - Inspection Switch: NORMAL (UP)
   - Door Disconnect Switch: Door Disconnect (UP)

Hoistway Scan Through the Startup Wizard
(continued)

6. Press **UP** or **DOWN** to scroll to the Startup Wizard.

7. Press **ENTER**, and then press **UP**.

Reminder: Before starting a hoistway scan, the door operator limits (DCL, DOL) must be correctly adjusted.

8. Repeatedly press **UP** until the UIT displays **Auto Hoistway Scan**.

9. Press **ENTER** to scan the hoistway, and the UIT displays **Auto Hoistway Scan**.

The Auto Hoistway Scan will automatically run the car at leveling speed to the bottom directional limit, and then up to the top directional limit, scanning the hoistway tape to learn the floor levels. If the hoistway scan was successful, the car should have leveled down into the top terminal landing.

a. If the hoistway scan was not successful, verify and correct magnet placement and orientation.
   - Leveling speed = 8-12 FPM.
   - Gate/Lock circuits are not opening up during the run.
   - Direction limits should not exceed $1^1/_2$" from the terminal landing.
   - The appropriate NTS and LV I/Os must be active when on DL.
   - The proper polarity of each magnet must be used.

b. To view learned floor levels, scroll to Commands > Commands Common >FCP.

10. The UIT displays **Write to Flash**, and this function saves all settings and values to the CPU's card memory. Press **ENTER** to perform this operation.

11. When **NEXT TEST?** displays, press **ENTER** and the UIT displays **Save Job to USB**. This action archives the job's controller CPU files to a USB memory stick.
    a. Install the manufacturing-provided USB flash drive included with the job.
    b. Press **ENTER** to perform this operation, and the UIT displays **Backing Software**.
    c. When the UIT displays **Backup Complete**, press **ENTER** and then press **DOWN** to exit the Startup Wizard.
    d. On the IOF Card, place the door disconnect switch in the OFF position.

Door Setup and Final Adjustments

See the appropriate door operator component manual.

I-2/I-3 Valve - Final Adjustments

Vertical Express power units have the manufacturing presets of the valve adjustments attached to the inside of the controller. The preset values ensure movement of the car, and also reduce final adjustment time. Perform these adjustments in the order given because they affect each other. For valves by other manufacturers, see the manufacturer's product manual.

IMPORTANT! Before starting this section, verify that the Preliminary I-2/I-3 Valve Setup has been performed. See the I-2/I-3 Valve component manual.

CAUTION To be adjusted, the I-2/I-3 Valve requires a minimum static system pressure of 90 PSI.

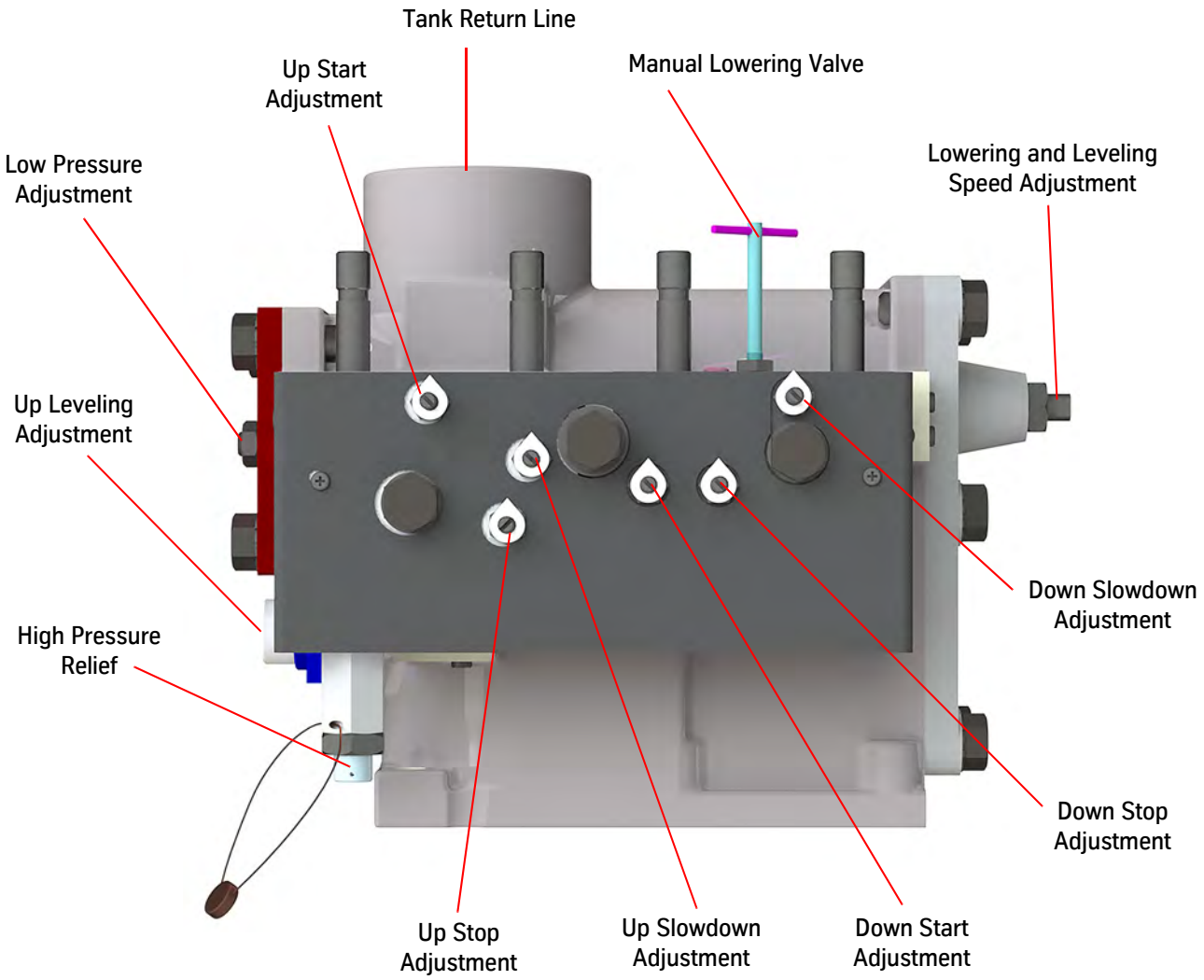


Figure 9 - I-2/I-3 Valve Details

Valve Adjustment Up Section

Use the UIT to monitor the speed for leveling or high speed.

- Block Select > Real Time Motion > Speed
- Block Select > Real Time Motion > Quick Commands > Show Stabilized Leveling

CAUTION **The controller requires positive valve stops for reliable operation. If the valve stop is adjusted too soft, it will result in operational issues.**

Up Slowdown and Up Leveling Speed

NOTE The Up Slowdown adjustment screw is a sensitive adjustment. Use small increments to change the adjustment. See Figure 9 on page 2-27.

1. Use the UIT to verify or set the selector slowdown point adjustments, P17 and P18, per the job's top speeds and Table 3 on page 2-36. For slowdown interactions related to stabilized leveling, see the I-2/I-3 Valve Reference on page 5R-7.
2. Verify that the car is empty.
3. Place controller on Automatic Operation, and send the car to the lowest landing.
4. Run the car to the floor above, and observe the leveling zone.
5. Adjust the Up Slowdown for 3–4 inches of stabilized leveling, as verified with the UIT, "Show Stabilized Leveling."

Up Slowdown: Adjust for 3–4 inches of Leveling	
IN (cw)	Shorten Leveling Zone
	Increase Leveling Speed
	Softer Up Slowdown

WARNING **Each time the Up Slowdown Adjuster is changed, the Up Leveling Speed must be rechecked.**

6. Run the car on Inspection Operation, and adjust the Up Leveling. The leveling speed should be 10-12 FPM. Use the controller's UIT (not logged in) to display the car speed.

Up Leveling: 10-12 FPM	
IN (cw)	Increase Leveling Speed
	Softer Up Slowdown

Valve Adjustment Up Section
(continued)

WARNING **When operating the car from the controller, ensure all safety precautions are followed.**

7. Place the car on Automatic Operation.

8. Determine the stabilized leveling zone. The stabilized leveling does vary some between runs with the I-2/I-3 Valve.
   a. Note the average of 5 runs.
   b. Adjust the Up Slowdown and Up Leveling speed (as necessary) to achieve an average of 3-4 inches of Up Stabilized Leveling and 10-12 FPM of leveling speed.

Up Stop and Up Start

Because Up Stop affects Up Start, Up Stop must be adjusted first.
Recommended = Minimum 1 turn more Up Start than Up Stop.

1. Adjust Up Stop for a soft but positive stop. See Figure 9 on page 2-27.

2. Adjust Up Start for a smooth but positive start.

3. Check to be certain full up speed is reached on a one-floor run, which may require Up Start to be more positive; this does not apply to short floors (4-16 inches).

4. Slightly alter Up Slowdown to achieve optimum performance, if necessary.

	Up Stop	Up Start
IN (cw)	Stop Softer	Start Smoother

Valve Adjustment Down Section

CAUTION **To avoid damage to the piston face and seat, never turn the Down Lowering and Leveling Speed Adjustment unless the car is in motion or resting on the buffers.**

Lowering Speed (Down Fast Speed)

1. Place the car on Automatic Operation at the top floor.

2. Use the controller's UIT (not logged in) to display the car speed.

Valve Adjustment Down Section
(continued)

3. Set the lowering speed while the car is in motion during an Up or Down run.
   a. Turn the Lowering Speed adjustment in one-half turn increments. See Figure 9 on page 2-27.
   b. After each adjustment, leave the flat end of the screw pointed 45 degrees to the tank return line.
   c. Run the car to confirm the correct Down High Speed as displayed on the controller's UIT home screen.

Lowering Speed	
OUT (ccw)	One-half Turn Increments
	Increase Lowering Speed

WARNING

If no speed change occurs with one full turn on the lowering speed adjuster, DO NOT CONTINUE TO TURN IT OUT. Ensure the DN Start adjustment is turned out at least one turn more than the DN Stop adjustment; should the issue remain, refer to the troubleshooting section of the valve component manual.

Down Leveling Speed and Down Stop

The Down Leveling Speed and the Down Stop adjustments must be performed together since Down Stop affects Down Leveling Speed. Down Leveling Speed, however, does not affect Down Stop.

1. Place the controller on Inspection Operation.
2. Adjust Down Stop for a positive stop. See Figure 9 on page 2-27.

CAUTION

To avoid damage to the piston face and seat, never turn the Down Lowering and Leveling Speed adjustment unless the car is in motion or resting on the buffers.

3. Adjust the Down Leveling Speed to 10–12 FPM.
4. Tighten the locknut on the Down Leveling Speed adjustment.
5. Re-check the Down Leveling Speed.

Down Stop	
IN (cw)	Stop Softer
	Increase Leveling Speed
Down Leveling Speed	
OUT (ccw)	Less than one-quarter turn increments
	Increase Leveling Speed

Valve Adjustment Down Section
(continued)

Down Start

1. Place the controller on Automatic Operation.
2. Adjust the Down Start to obtain a smooth start. Ensure that the car achieves full speed on a one-floor run. If not, make Down Start more positive. See Figure 9 on page 2-27.

Down Start	
IN (cw)	Start Smoother

Down Slowdown

Make the Down Slowdown adjustment in very small increments as soon as a change is observed in the leveling zone. The car will overshoot the landing if the adjustment is turned out too far.

Down Slowdown	
OUT (ccw)	Shorten Leveling Zone
	Increase Leveling Speed
	Softer Up Slowdown

1. Turn Down Slowdown out in small increments until the car has a leveling zone of 3–4 inches. See Figure 9 on page 2-27.
2. Determine the stabilized leveling zone. The stabilized leveling does vary some between runs with the I-2/I-3 Valve.
   a. Note the average of 5 runs.
   b. Adjust the Down Slowdown and Down Leveling speed (as necessary) to achieve an average of 3-4 inches of Down Stabilized Leveling and 10-12 FPM of leveling speed.
3. Run the car down on Inspection Operation to recheck down leveling speed, and readjust Down Leveling, if necessary, for 10–12 FPM.

- It may be necessary to slightly alter the point in the hoistway where the slowdown is initiated to achieve optimum valve and car performance, P17 (Up) and P18 (Down).
- For slowdown interactions related to stabilized leveling, see the I-2/I-3 Valve Reference on page 5R-7.

Floor Stop Adjustment - Master Floor

This procedure applies to three-stop jobs and higher, and verifies that the valve is stopping the car at the master floor the identical way in both directions. Do not worry about floor level accuracy in this procedure, because the floor levels will be adjusted in the Floor Position & Leveling Magnet Adjustment on page 2-34.

1. Select a master floor close to the middle of elevator travel.

Valve Adjustment
(continued)

2. Run the empty car on Automatic Operation up into the master floor. Note where the car sill is in relation to the master floor hatch sill.

3. Run the empty car on Automatic Operation down into the master floor. Note where the car sill is in relation to the master floor hatch sill.

4. Achieve a valve stop that results in the same final car location in both travel directions.

CAUTION **To avoid damage to the piston face and seat, never turn the Down Lowering and Leveling Speed Adjustment unless the car is in motion or resting on the buffers.**

How to change the leveling speeds for the appropriate travel direction.

- Increase the leveling speed - To increase car momentum and put the car further in its travel direction upon the stop.
- Decrease the leveling speed - To decrease the car momentum and shorten the final resting place of the car in its travel direction.

CAUTION **DO NOT exceed 14 FPM maximum for empty car leveling speeds.**

The UP and DOWN stop adjustments need to be firm so that the stop can be felt slightly (a soft but noticeable bump at the stop), as this prevents fluid temperature-based variations in performance and allows the control system to achieve increased car level positioning control.

Relevel Check - All Jobs

1. Place the empty car on Automatic Operation at the master floor or at the top floor of a two-stop job.

2. Force an UP relevel, and verify that the control system and the valve place the car at floor level.

   a. On the I-2/I-3 Valve, slowly turn the Manual Lowering Valve (t-handle) counter-clockwise (ccw) to open, allow the car to lower slightly, then quickly turn the valve clockwise (cw) to close.

   b. Ensure that the car went low enough: $>{}^{1}/_{2}$" with P19 & P22 at default value.

      - If the car did not go low enough: Troubleshoot the Manual Lowering Valve to identify the problem, and repeat the relevel check until correct.
      - If the car went low enough: The motor and valve should energize and place the car back at floor level.

Performance Check with Full Load

1. Place a capacity load on the car.
2. Run the car on Automatic Operation, and the check performance at all floors. All valve functions will become firmer at upper landings. If adjustments are necessary, it will affect the empty car performance.

NOTE

- The Down Leveling Speed will increase and the Down Leveling Zone will be shorter. It may be necessary to change the Down Slowdown adjustment to be certain there are at least 2 inches of leveling.
- If necessary, turn IN on the Down Slowdown to increase the leveling zone.
- The Up Leveling Speed will increase. The Up Leveling Zone will change between no load and full load. Do not change any adjustments made with no load if there is at least 1 inch of Up Leveling Zone with a full load.
- If necessary, turn OUT on the Up Slowdown adjustment to increase the Up Leveling Zone.

3. Verify that the car is obtaining full speed in both directions on a one-floor run.
4. Record the working pressure in the up direction. The working pressure value will be used in the next procedure.
5. Remove the capacity load from the car.

Final Relief Pressure with Full Load

1. Place the controller on Inspection Operation, close the line shut-off valve, and set Z44 = 10 seconds.
2. Start the pump, and read the relief pressure.

WARNING **Do Not adjust the relief pressure to 150%, as allowed by code, unless the entire hydraulic system has been replaced.**

3. Add 25% to the working pressure recorded in step 4 of the previous procedure, and set the relief valve to relieve at this new pressure value.
4. Stop the power unit, and tighten the locknut on the relief pressure adjustment.
5. Re-check the relief pressure.

WARNING **Immediately stop the power unit if the pressure exceeds 625 PSI.**

6. Open line shut-off valve, place car on Automatic Operation, and reset Z44 = 2.

ADJUSTMENT

Floor Position & Leveling Magnet Adjustment

IMPORTANT!

Before proceeding with the floor leveling adjustments, the valve must be fully adjusted.

1. Perform a floor survey to determine if the car is level at each floor.
   a. Run the car into one landing, and use the UIT to verify that the **POS:** and **REF:** DPP counts are the same.
      UIT: Real Time Motion > Motion/Position
   b. Verify that the car sill is level with the hoistway sill for that landing. If the DPP counts and the sills are not level, correct the 8" leveling magnet's position.
   c. Repeat step 1 for each landing.
2. If any floor leveling magnet been repositioned, perform a new hoistway scan and repeat step 1.
3. When the floor leveling magnet placement is correct, attach each magnet with two small beads of silicon caulk. See Figure 10.

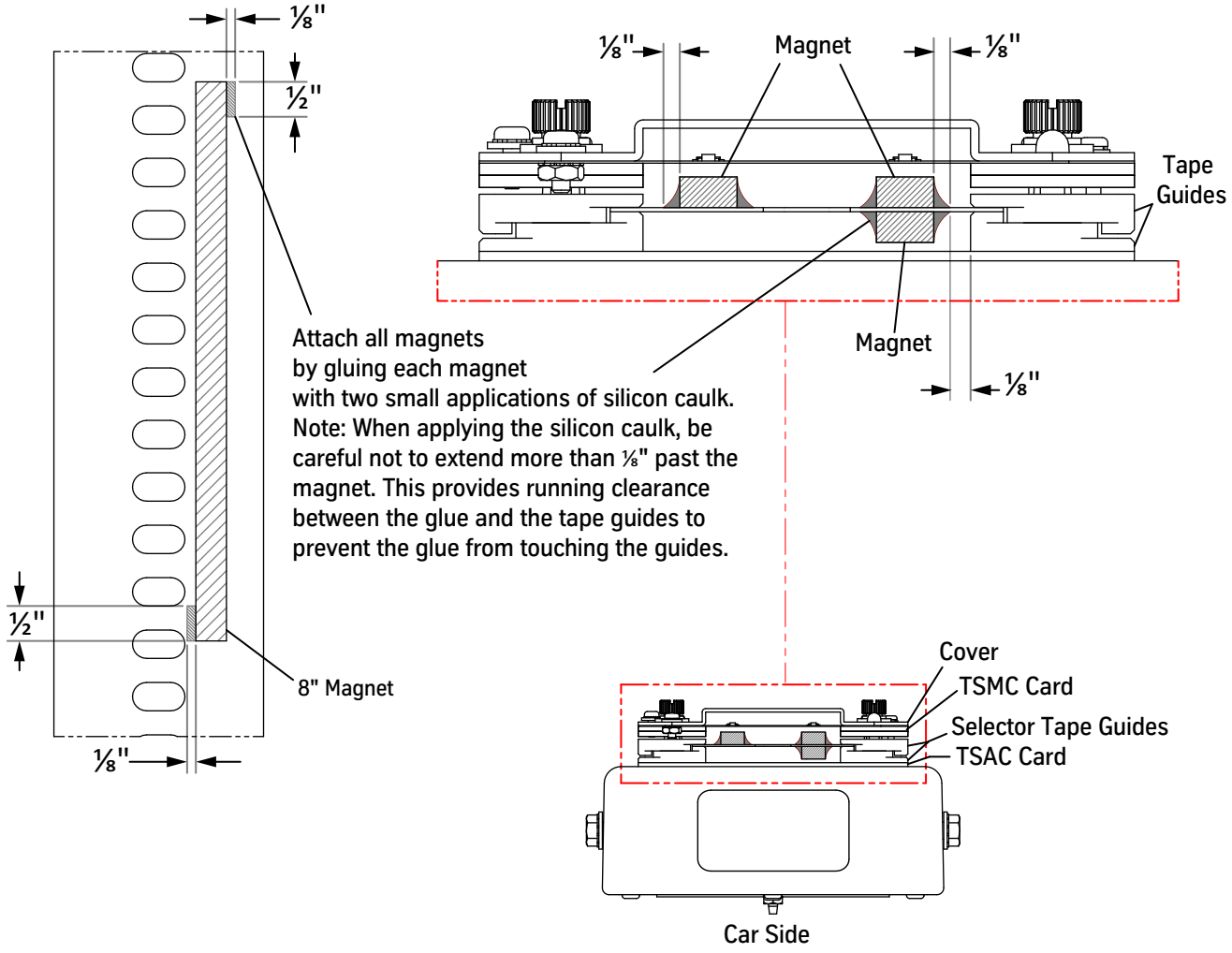


Figure 10 - Glue the Floor Magnets

Terminal Slowdown Check

1. Confirm the P17 and P18 slowdown position counts, based on job speed. See Table 3 on page 2-36 for the proper values and for all steps in this procedure.

2. Adjust the terminal slowdown magnets so that they activate 2–4" after the selector slowdown.

   Example

   Both up and down car speeds are 100 FPM. Table 3 shows that the up selector slowdown is 939 counts (each count = $^{1}/_{40}$"). Therefore, the up terminal slowdown magnet should activate 18–20" before the landing. The down selector slowdown is 683 counts, so the down terminal slowdown magnet should activate 12–14" before the landing.

Verify Proper Function of the UP Terminal Slowdown Magnets via the UIT

1. In the UIT, scroll to Block Select Adjustments > Adjust Car/Group > Position System > P17, and press **ENTER** to edit the value.

2. Press **UP** or **DOWN** to adjust P17 to one half of the recommended value from Table 3 on page 2-36.

3. Place the car at a floor below the top terminal landing. This action will allow the car to achieve contract speed in the up direction.

4. Run the car to the top terminal landing.
   - NTST should activate, slow the car down, and stop the car within door zone.
   - The controller should log faults (981,2801, 1062, etc.) showing the NTS system was activated.

CAUTION **In the next step, a metal scribe will damage the tape.**

   a. If the car does not stop within the door zone, use a marker that will not damage the selector tape to mark the bottom edge of the slowdown magnet's current location.

   b. Use the alignment tool as a guide, and slide the slowdown magnets down in 1" increments. Repeat until the car stops within the door zone.

5. Restore P17 to the value indicated in Table 3. If the slowdown magnets were repositioned to achieve proper operation, add 43 to the value of P17 for each inch the magnets were moved.

6. Scroll to Block Select Adjustments > Adjustment Car/Group > Car Adjustments > WRT, and issue a WRT Command to save the adjustments.

7. Attach each magnet in its final location with two small beads of silicone caulk. See Figure 10 on page 2-34.

Verify Proper Function of the DOWN Terminal Slowdown Magnets via the UIT

1. In the UIT, scroll to Block Select Adjustments > Adjust Car/Group > Position System > P18, and press **ENTER** to edit the value.
2. Press **UP** or **DOWN** to adjust P18 to one half of the recommended value from Table 3.
3. Place the car at the first non-close floor above the bottom terminal landing. This action will allow the car to achieve contract speed in the down direction.
4. Run the car to the bottom terminal landing.
   - NTSB should activate, slow the car down, and stop the car within the door zone.
   - The controller should log faults (981,2801, 1062, etc.) showing the NTS system was activated.

CAUTION **In the next step, a metal scribe will damage the tape.**

   a. If the car does not stop within the door zone, use a marker that will not damage the selector tape to mark the bottom edge of the slowdown magnet's current location.
   b. Use the alignment tool as a guide, and slide the slowdown magnets down in 1" increments. Repeat until the car stops within the door zone.

5. Restore P18 to the value indicated in Table 3. If the slowdown magnets had to be repositioned to achieve proper operation, add 43 to the value of P18 for each inch the magnets were moved.
6. Scroll to Block Select Adjustments > Adjustment Car/Group > Car Adjustments > WRT, and issue a WRT Command to save the adjustments.
7. Attach each magnet in its final location with two small beads of silicone caulk. See Figure 10 on page 2-34.

Car Speed (FPM)	Up Adjustment		Down Adjustment	
	Distance	Slowdown Count	Distance	Slowdown Count
50	11"	470	8"	342
75	16"	683	12"	512
100	22"	939	16"	683
125	28"	1195	22"	939
150	34"	1451	28"	1195
175	42"	1792	34"	1451
200	50"	2134	42"	1792

Table 3 - Selector Slowdown Distance

Final Adjustments

ESP200 Overload

IMPORTANT! **Before the elevator is turned over to the customer, overloads must undergo this procedure.**

1. Run the car up with a full load, and measure the stabilized running current at each sensing loop.

NOTE Take the stabilized running current measurements with a clamp-on AC ammeter connected directly below the sensing loops.

2. Calculate the full load amps adjustment. The full load amps adjustment equals the highest reading in Step 1 + 10%.

CAUTION **The full load amps adjustment must not be set outside the calibration range on the overload faceplate. To do so may prevent the overload from tripping and may also damage the motor.**

3. Set the full load amps adjustment dial equal to the value calculated in Step 2. See Figure 11.

4. Verify that the car will run the entire length of the hoistway with a full load.

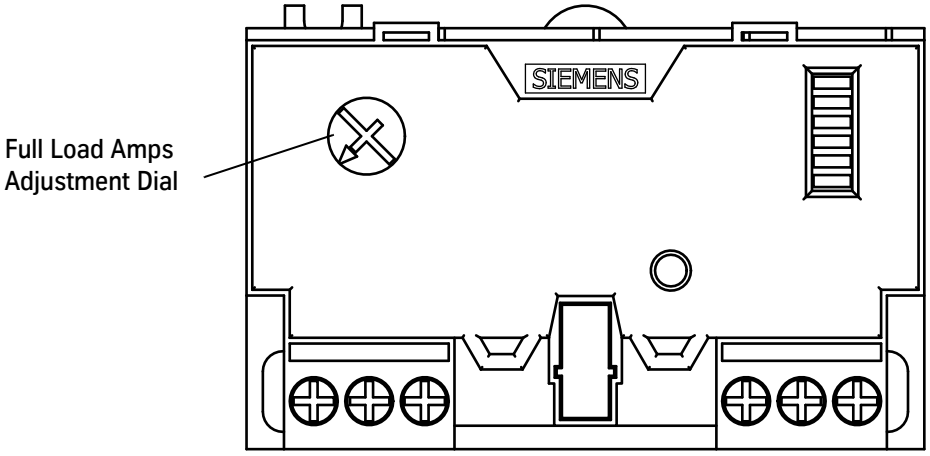
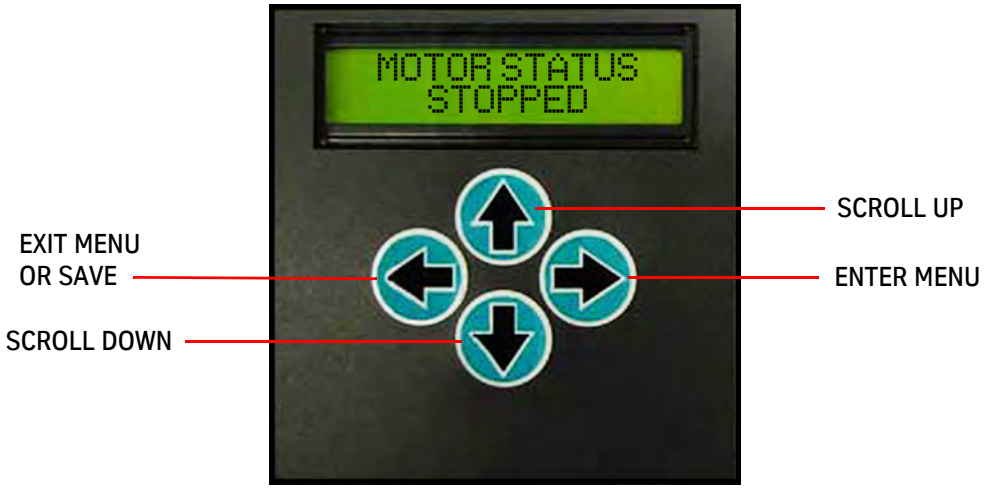


Figure 11 - ESP200 Overload Adjustment

Final Adjustments
(continued)

Electronic Starter



Electronic Starter Display

- The electronic starter displays **MOTOR STATUS STOPPED** when the system is normal. Reset the starter if it reads otherwise and, before continuing, correct any problem indicated on the display.
- The starter display reverts to **MOTOR STATUS STOPPED** after 5 minutes of inactivity.

1. Verify that the Starting Amps = the Motor Nameplate Amps x 3 (Mfg. default).

   Optional: 2 x FLA = minimum setting, 4.5 x FLA = maximum setting.

2. From the **MOTOR STATUS** menu, press ←. The **STATUS** menu displays.
3. Press ↓ twice to display the **PARAMETERS** menu.
4. From the **PARAMETERS** menu, press → once. **STARTING AMPS** displays.
5. Set the starting amps value equal to three times the nameplate FLA.
   a. Press → once to access the value.
   b. Press ↑ or ↓ to adjust the value of the flashing digit. Press → to move to the next digit.
   c. Press ← to exit the starting amps parameter.

   A prompt to **ACCEPT** or **REJECT** the change displays. Press ↑ to accept or ↓ to reject and correct the parameter.
6. Press ↓ once and **OVERLOAD AMPS** displays.
   a. If the value is correct, skip to Step 8.
   b. If the value is not correct, continue to Step 7.

Electronic Starter
(continued)

7. Press → once to access the value.
   a. Press ↑ or ↓ to adjust the value of the flashing digit.
   b. Press → to move to the next digit.
8. Press ← to exit to the **PARAMETERS** Menu.
   A prompt to **ACCEPT** or **REJECT** the change appears. Press ↑ to accept, or ↓ to reject and correct the parameter.

Operational Adjustments

Configure the THY02 Card

The THY02 Card, powered by 24VDC, is a receive-only device. See Figure 12.

- REC+ and REC- are for 485 communication protocol.
- CANH and CANL are for CAN communication protocol used with ICON32.

1. Set the S1 Dip Switch #3 to the ON position.
2. Set the controller adjustment 043=9 for the Car CAN Channel (CCL/CCH).
3. Issue a WRT Command.
4. Press **RST** on the CPUC Card.

Function	Dip Switch
ON = Self-test Mode. Unit ignores data link inputs.	1
ON = Use 50 kHz CAN link.	3
OFF = Use 100 kHz CAN link.	
ON = Use MAMMI Message 8 as play strobe for voice.	4
ON = Unit display alternately shows lower two ASCII characters of floors and messages. When displaying a message, "100" LED is lit.	5
ON = Unit display shows floor position number instead of ASCII characters.	6
ON with EEPROM installed = Activate the passing chime when the bit is set in EEPROM for that floor position number.	7
ON = Activate floor number redundancy (need same data twice).	8

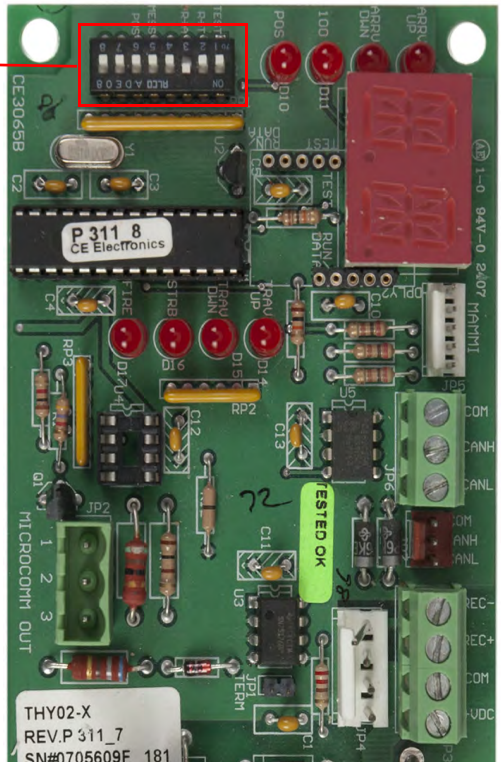


Figure 12 - THY02 Card and Dip Switch Functions

Additional Operational Adjustments

Verify the following settings:

1. TIM set correctly.
2. DAT set correctly.
3. L10 - L34 for lobby request (parking options) - some jobs ship with parking enabled.
4. Multistage jacks.
   a. JRT set to desired time.
   b. O29 = 6-10 seconds.
   c. O44 - # motor starts to trigger a jack resync.
   d. O30 - Jack resync interval in days (1-3).
   e. O32 - Jack resync door.
5. Fire service.
   a. F10 - Main fire return landing.
   b. F11 - Alternate fire return landing.
6. Set Hoistway Access (optional).
   - Z38 - Hoistway Access Bottom Floor Door Selection
   - Z39 - Hoistway Access Top Floor Door Selection
   - O11- Hoistway Access Bottom Zone
   - O21- Hoistway Access Top Floor
   - O22- Hoistway Access Top Zone
   - Configure the Safety Processor
   - Issue TECC Command

Save Parameters and Backup Job Software

1. Place the controller inspection switch in the INSP position.
2. Access the UIT.
3. Press **UP** or **DOWN** to scroll to the Startup Wizard.
4. Press **ENTER** to select the Startup Wizard, and then press **UP**.
5. Press **UP** until **Write to Flash** displays.
6. Press **ENTER**, and press **ENTER** again, and the UIT displays **Save Job To USB**.
7. Insert the USB flash drive for the job, and press **ENTER**. The CPU will create a backup folder in the tke folder, and save the job software. This process will take several minutes.
8. When the process is complete, press **ENTER**.
9. Press **DOWN**.
10. Place the controller inspection switch in the NORMAL position.
11. Return the car to service.

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DIAGNOSTICS SECTION

DIAGNOSTICS SECTION

Contents

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Adjustments

Adj	Unit	Range	Definition
C10	sec.	0–900	Code Blue Door Hold Time - The time the doors will remain opened at the code blue designated floor. If, after this time, the Hospital Service switch has not been activated, the doors will close and the car will return to normal operation. **Note**: If the AST timer expires before CBH, the car will return to Automatic Operation.
C11-C25	cars	0–ncars	Code Blue Response Priority 1-15 - Use this adjustment to establish priorities for the cars responding to Code Blue Operation. C11 is the highest priority car followed by C12, etc. A zero (0) for this adjustment turns OFF the Code Blue Operation for the car.
C26	—	0–1	Group Code Blue Operation - Set to 1 to enable.
D10	—	0–2	Limited Door Reversal Type Values: 0 = Disabled 1 = Active with EE only 2 = Active with SE or EE
D11	—	0–2	Nudging Enable Values: 0 = Disable 1 = Enable 2 = Enable with DOB override The door open button causes the doors to fully reopen during nudging.
D12	—	0–8	Front Door Type Values: 0 = No Door 1 = Electronic Door Operator using 6300PY_ Card 2 = Discrete Door Operator 3 = Freight Door (freight doors with auto open and auto close) 4 = Freight Manual (freight doors with no auto open, no auto close, no door times, and no door watchdog protection timer) 5 = Freight Auto Open (freight doors with auto open only, no door watchdog protection timer) 6 = Freight Auto Close (freight doors with auto close only, and with door watchdog protection timer) 7 = Electronic Door Operator with CAN serial link. ICON32 with UDC (6300PA) Card or LD-16 Door Operator 8 = Electronic Door Operator with RS-485 serial link
D13	—	0–8	Rear Door Type Values: 0 = No Door 1 = Electronic Door Operator using 6300PY_ Card 2 = Discrete Door Operator 3 = Freight Door (freight doors with auto open and auto close) 4 = Freight Manual (freight doors with no auto open, no auto close, no door times, and no door watchdog protection timer) 5 = Freight Auto Open (freight doors with auto open only, no door watchdog protection timer) 6 = Freight Auto Close (freight doors with auto close only, and with door watchdog protection timer) 7 = Electronic Door Operator with CAN serial link ICON32 with UDC (6300PA) Card or LD-16 Door Operator 8 = Electronic Door Operator with RS-485 serial link

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Adj *(cont.)*	Unit	Range	Definition (cont.)
D14	0.1 sec.	0–100	Safety Edge Door Time - This adjustment sets the length of time the doors will stay open after the safety edge is activated.
D15	0.1 sec.	4–50	Electric Eye Door Time - This adjustment sets the length of time the doors will stay open after the electric eye is activated.
D16	0.1 sec.	0–100	Door Open Button Door Time - This adjustment sets the length of time the doors will stay open after the door open push button activation.
D17	sec.	5–900	Door Hold Button Door Time - This adjustment sets the length of time the doors will stay open after the door hold push button activation.
D18	0.1 sec.	0–40	Open High Speed Time - This adjustment sets the amount of time delay after the doors start the opening cycle with OD and before picking the OHS Relay.
D19	sec.	5-120	Nudging Door Time - This adjustment sets the length of time that the door must be held open before nudging is activated. See also: D11, D40, F23, Z16.
D20	0.1 sec.	0–60	Door Reversal Time (optional) - If the electric eye remains active, this adjustment is the length of time the doors will remain at the door reversal limit (DRL) switch before fully opening. **Note**: To enable this feature, the limited door reversal type must be non-zero. See also: D10
D21	0.1 sec.	0–600	Front Door Watchdog Time - If the doors do not reach the door close limit before this timer expires, the system assumes the doors have failed. The doors will be reopened and another close cycle attempted.
D22	0.1 sec.	0–600	Rear Door Watchdog Time - If the doors do not reach the door close limit before this timer expires, the system assumes the doors have failed. The doors will then be reopened and another close cycle attempted.
D23	0.1 sec.	50–300	ADA Hall Call Door Time - This adjustment sets the length of time the doors stay open when answering hall calls with the ADA option enabled.
D24	0.1 sec.	1–300	Car Call Door Time - This adjustment sets the length of time the doors stay open when answering car calls under normal operation.
D25	0.1 sec.	1–300	Hall Call Door Time - This adjustment sets the length of time the doors stay open when answering hall calls under normal operation.
D26	—	0–2	Door Disconnect. Values: 0 = The door disconnect feature is deactivated. 1 = The door disconnect feature is active. 2 = Capture the car on door disconnect. **Note**: "3" is not a user setting. D26 = 3 followed by WRT will reload the job configuration file in order to recover elevator operation.
D27	—	0–1	ADA - Set to "1" to meet ADA legal requirements (USA).
D28	sec.	30–600	Stuck Device Time - This adjustment sets the length of time a door opening device (such as the Door Open Button) must be active before it is recognized as being stuck.
D29	—	0–1	Extended Door Time Enable - To activate this feature, set adjustment D30.
D30	0.1 sec.	10–250	Extended Door Time - This adjustment sets the length of time added to the standard door time when the car is at the Extended Door Time Landing.
D31	floor	1–nf	Extended Door Time Landing.
D34	—	0–1	Non-simultaneous Door Enable. Values: 0 = Disable non-simultaneous doors 1 = Enable non-simultaneous doors
D38	sec.	3–120	Sabbath Door Hold Time - The time (in seconds) the doors will hold open at each floor when the car is operating on Sabbath Operation.

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Adj *(cont.)*	Unit	Range	Definition (cont.)
D42	—	0–1	Freight Doors Present - Informs the system that the job has freight doors - Values: 0 = No freight doors 1 = Freight doors
D43	—	0–1	Door Open Device Stuck Detection Disable - This adjustment, when set to 1, disables the detection for the door open device and the doors will remain open indefinitely.
D47	sec.	0–1	Wittur Keeper Timeout - The controller will disable Close Door after this time, and the doors will relax and disengage the clutch. Values: 0 = Disable (standard operation - provide door close while in motion). 1 = Enable
E10	—	0-2	Emergency Power Type. Values: 0 = None. 1 = 10D-0C (Type 0) hydraulic battery lower and shutdown. 2 = 10D-3/10D-4; pre A17-2008 (Type 3 or 4). Alternate Power. 3 = 10D-0A (Type 1); PowerVator with traction. 4 = 10D-3/10D-4; A17-2008 (Type 3 or 4). Alternate Power. 5 = Not applicable. 6 = 10D-3/10D-4; A17 2016 (Type 3 or 4). Note: Power cycle is required for changes to take effect.
E11	floor	1–nf	Emergency Power Return Floor (Car) - During an Emergency Power return phase, this adjustment sets which floor the car will attempt a return to.
E12	F/R	0–1f	Emergency Power Door - For use with selective doors, this adjusts which door will open at the return floor (when returning to landing). Values: 0 = Front 1 = Rear
E13	sec.	10–300	Emergency Power Manual Select Time - When in manual select mode, this adjusts the time delay before the car is actually selected (Type-4 only).
E14	—	0–1	Okay To Hold Doors Open on Emergency Power. Values: 0 = False 1 = True
E17	floors	1–nfloors	Emergency Power Return Floor (Group) - During an Emergency Power return phase, this adjustment sets which floor the car will attempt a return to.
E18	cars	1–ncars	Maximum Elevators on Emergency Power - This is the maximum number of cars allowed to run simultaneously on Emergency Power Operation.
E19	min.	2–10	Emergency Power Extended Lowering Time - Use this adjustment to set the time allowed for cars to arrive at the emergency power floor.
E20-E34	ncars	0–ncars	Emergency Power Lowering - This adjustment sets the automatic lowering sequence for Emergency Power Operation. **Note**: E20 would be the first elevator to lower, and E34 would be the last elevator to lower.
E35-E49	ncars	0–ncars	Emergency Power Run - This adjustment sets the automatic select to run sequence for Emergency Power Operation. **Note**: E35 would be the first elevator to run, and E49 would be the last elevator to run.
E50	sec.	0–60	Emergency Power Lower Timer - This adjustment sets the time for each group in the lowering sequence. **Note**: If the groups are powered up simultaneously, the previous group has sufficient time to initialize and begin to lower.
E51	sec.	0–100	Emergency Power Auto Select Timer - If the groups are powered up on Emergency Power simultaneously, this adjustment sets the time for each group in the lowering sequence to initialize and begin lowering.

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Adj *(cont.)*	Unit	Range	Definition (cont.)
E52	—	0–1	Group Level Emergency Power. • Set to 1 = Enable ICON32 value. • Set to 0 = Disable group emergency power features.
F10	floor	1–nf	Main Fire Landing - Floor position number designated as the Main Fire Recall Floor. This should be set for the same floor where the Fire Phase 1 key switch is located.
F11	floor	1–nf	Fire Alt Landing - Floor position number designated as the Alternate Fire Recall Floor.
F12	F/R	0–1	Main Fire Landing Door - When in response to Phase 1 Fire Service, this adjusts which door opens at the Main Fire Landing. Values: 0 = Front Door 1 = Rear Door
F13	F/R	0–1	Fire Alt Landing Door - When in response to Phase 1 Fire Service, this adjusts which door opens at the Alternate Fire Landing. Values: 0 = Front Door 1 = Rear Door
F14	sec.	0–60	Fire Override Time - This is the time delay that must expire before Phase 1 Fire Service is allowed to override attendant operated features such as Independent Service. **Note**: This feature is not allowed to operate on some Fire Service types.
F15	—	0–2	Fire Service Switch Type - Set this type of switch for a Secondary Phase 1 Fire Service switch. The value to be entered must be dictated by the Fire Service type (F16) and the provided hardware. Values: 0 = No Secondary Switch 1 = Two Position Secondary Switch 2 = Three Position Secondary Switch
F16	—	0–20	Fire Service Type - This selection determines which type of Phase 1 and Phase 2 Fire Service Operation will be provided. Values: 0 = No Fire Service 1 = ANSI/ASME – 1993 2 = Chicago Building Code 3 = California 4 =New York RS18 5 = Massachusetts 1998 6 = ANSI/ASME – 1998 7 = Houston 1998 8 = Michigan 1998, Detroit 9 = B44 10 = White Plains NY 11 = ANSI/ASME – 2000 12 = B44 – 2000 13 = ANSI/ASME – 2004 14 = B44 – 2004 15 = Korea 16 = ANSI – 2005 17 = B44 – 2005 18 = EN81 – 2005 19 = ANSI 2007 20 = B44 – 2007 21 = New York - 2003 22 = ANSI - 2013 23 = ANSI - 2016 24 = EN81-72 2015 25 = Russia 26 = France 27 = Britain 28 = Switzerland 29 = DO NOT USE (EN8173_2016_NH) 30 = Netherlands 31 = Belgium 32 = EN8173 - 2016 33 = DO NOT USE (Spain)
F17	0.1 sec.	0–255	Hall Fire Door Open Time - This adjustment sets the value of the Phase 1 door open time for special (Houston) Fire Service. **Notes**: • Cars recalled to the fire floor on Phase 1, with corresponding doors held open, will close the doors after this time delay. • Additional door open push button (input FSDO) per car is required in the hall for this operation so that the doors may be reopened on demand by fire personnel.

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Adj *(cont.)*	Unit	Range	Definition (cont.)
F18	—	1–3	Phase 1 Safety Edge Operation - This adjustment determines how the safety edge and door operation interact during Fire Service Phase 1. Operation. This adjustment must be coordinated with applicable Fire Codes. Values: 1 = The safety edge is inhibited (no door re-open from the safety edge), and the doors close at reduced door speed during Phase 1 Fire Service. 2 = The safety edge is inhibited (no door re-open from the safety edge), and the doors close at normal door speed during Phase 1 Fire Service. 3 = The safety edge is functional (doors will re-open from the safety edge), and the doors close at normal door speed during Phase 1 Fire Service.
F19	—	1–3	Phase 2 Safety Edge Operation - This adjustment determines how the safety edge and door operation interact during Fire Service Phase 2. Operation. This adjustment must be coordinated with applicable Fire Codes. Values: 1 = The safety edge is inhibited (no door re-open from the safety edge), and the doors close at reduced door speed during Phase 2 Fire Service. 2 = The safety edge is inhibited (no door re-open from the safety edge), and the doors close at normal door speed during Phase 2 Fire Service. 3 = The safety edge is functional (doors will re-open from the safety edge), and the doors close at normal door speed during Phase 2 Fire Service.
F20	—	0–1	Fire Lift - Use this adjustment to designate an elevator as a Fire Lift. Note: This adjustment only applies to fire service types that require the designation of Fire Lifts. Values: 0 = The elevator is not designated as a Fire Lift. 1 = The elevator is designated as a Fire Lift.
F21	—	0–1	B44 Phase 2 Activation Location - Only use this adjustment for B44 Fire Service Operation. **Note**: This adjustment will determine whether Phase 2 Operation is allowed to activate/deactivate only at the main return landing, or activate/deactivate at the main or alternate return landing. Values: 0 = Phase 2 can activate only at the main return landing. 1 = Phase 2 can activate/deactivate at main or the alternate return landing.
F23	—	0–1	This adjustment will set the 1998 B44 Fire Service, Phase 2 return door speed. **Note**: If F23=1, the door closes in response to the initial Phase 2 recall activation done at nudging speed. This action occurs without regard to adjustment F19 (used to set up the safety edge operation and the door closing speed during Phase 2). See also: D11, D19, D40, Z16. Values: 0 = The doors close at a speed determined by the F19 adjustment. 1 = The doors close at nudging speed.
F24	—	0–1	This adjustment will set 2000 Fire Service (A17 & B44) Phase 2 recall floor. Values: 0 = Phase 2 recall will take the car to the main fire floor. 1 = Phase 2 recall will take the car to the current active fire floor.
F25	—	0–1	This adjustment will set the Fire Service Return Indicator (Fire Hat). **Note**: The F25 setting has no effect on the 2004 Fire Service. The Fire Hat light will remain active while either Phase 1 or Phase 2 is active. Values: 0 = The Fire Hat light is active during Phase 1 Recall and, where applicable, during Phase 2 Recall. The light will deactivate when the car arrives at the fire floor. 1 = The Fire Hat light will remain active while Phase 1 or Phase 2 is active.

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Adj *(cont.)*	Unit	Range	Definition (cont.)
F26	—	0–4	This adjustment will set variations of Smoke Sensor Operation for Standard 2000 Fire Service (A17 and B44). Values: 0 = The Standard 2000 (A17 and B44) fire service sensor operation is active. 1 = The Maryland variation of 2000 fire service is active. Maryland allows the active recall floor to be changed from the main landing to the alternate landing if the main landing sensor is active, the secondary switch (if provided) is in the OFF position, and the primary switch is moved to the RESET position and then to the OFF position. 2 = The Ohio variation of 2000 fire service is active. Ohio allows the alternate landing recall on Phase 1 to be overridden: place either the primary or secondary switch in the ON position and the car will move to the main landing. The car will revert to the alternate landing recall if the primary switch and the secondary switch (if provided) are in the OFF position and the main landing sensor is still active. 3 = The Massachusetts variation of 2000 fire service is active. Massachusetts allows the alternate landing recall on Phase 1 to be overridden: place the primary switch in the ON position and the secondary switch will be ignored if the main landing sensor is active. 4 = The Manchester, NH variation of 2000 fire service is active. Manchester allows fire service initiated by sensors to be deactivated: reset all sensors and no required switch change is needed.
F31	floors	1-nfloors	Group Fire Recall Landing – This adjustment sets the designated floor position number for the Main Fire Recall Floor. **Note**: This should be set to the floor location of the Phase 1 Fire Service Key Switch.
F32	floor	1–nfloors	Group Alternate Fire Recall Floor - This is the designated floor position number for the Alternate Fire Landing.
F33	—	0–1	Flash FSRI on FSE Activate First Inhibit flashing of fire hat if FS PH1 is activated by some means other than machine room or hoistway smoke sensor. Values: 0 = Flash FSRI anytime the machine room smoke input is active. 1 = Only flash FSRI if machine room or hoistway smoke sensors are activated before other FS PH1 activation means.
H11	F/R	0–1	Homing Return Door 1 - This adjustment assigns which door will open at return floor 1 (when the landing has selective doors). Values: 0 = Front 1 = Rear
H12	floor	1–nf	Homing Return Landing 2 - This adjustment changes the floor the car returns to during car homing operation. To activate, use Input HM2.
H13	F/R	0–1	Homing Return Door 2 - This adjustment assigns which door will open at return floor 2 (when the landing has selective doors). Values: 0 = Front 1 = Rear
H14	floor	1–nf	Homing Return Landing 3 - This adjustment changes the floor the car returns to during car homing operation. To activate, use Input HM3.
H15	F/R	0–1	Homing Return Door 3 - This adjustment assigns which door will open at return floor 3 (when the landing has selective doors). Values: 0 = Front 1 = Rear
H16	0.1 sec.	0–600	Homing Door Time - This adjustment sets the door time used when at the return landing (during car homing operation).

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Adj *(cont.)*	Unit	Range	Definition (cont.)
H17	floor	1–nf	Flooded Pit Sensor 1 Operation Return Floor - This adjustment sets the floor that the car goes to if the pit is flooded, sensor input FPS1.
H18	F/R	0–1	Flooded Pit Sensor 1 Operation Return Door - This adjustment sets the side of doors that cycle upon arrival at the return floor during Flooded Pit Operation, sensor input FPS1. Values: 0 = Front 1 = Rear
H19	floor	1–nf	Flooded Pit Sensor 2 Operation Return Floor - This adjustment sets the floor that the car goes to if the pit is flooded, sensor input FPS2.
H20	F/R	0–1	Flooded Pit Sensor 2 Operation Return Door - This adjustment sets the side of doors that cycle upon arrival at the return floor during Flooded Pit Operation, sensor input FPS2. Values: 0 = Front 1 = Rear
H21	sec.	0-30	Flooded Pit Door Open Time - This adjustment sets the door standing time used at the return floor.
J10	pounds	500–65000	Capacity - The rated car capacity.
J11	—	1–# of cars	Car ID - The car number within a group, beginning with 1. Used by the software for identification and I/O assignments. See ELD for the designator - used by programs and people for identification. **Note**: Altering this value may cause some features to malfunction.
J12	—	0–240	Car Communication Number. Values: 0 = The controller computes the comm number from the car and group number. 1-255 = Force to the selected comm number.
J13	—	1–8	Group ID - The group number within a multiple group network, beginning with 1.
J14	floor	1–nf	Lobby Floor - This adjustment sets the lobby to the proper car opening (beginning with 1 = bottom floor). **Note**: This floor number may not be the building floor number.
J19	—	0–1	Relevel on the Stop Switch - Permits a re-level with the in Car Stop Switch active and the CST input not active; Does not permit a re-level for the Fireman's Stop Switch(es). Values: 0 = No releveling while the Emergency Stop Switch is thrown. 1 = Up releveling only while Emergency Stop Switch is thrown.
J20	—	0–1	Stop Switch Type - This adjustment sets the value to the type of stop switch provided on this installation. Values: 0 = Keyed stop switch. 1 = Public access stop switch.
L10	cars	0–ncars	Lobby Elevator Request - Number of cars requested to park at the lobby. Values: 0 = Disable 1 = Enable
L12	floors	1–nfloors	Lobby - This adjustment sets the designated floor position number for the lobby floor, and is also used as the homing floor for the lobby elevator request.
L14	floors	1–nfloors	Zone 1 Floor - The car stays at the last floor served for normal operation. **Notes**: • When parking is enabled and a car becomes free, it will be sent to one of the zone floors (after a time delay - L25). • L14 through L19 allow for six different zone or parking floors. • The number of zone floors used is set by L20.
L15	floors	1–nfloors	Zone 2 Floor - See L14.
L16	floors	1–nfloors	Zone 3 Floor - See L14.
L17	floors	1–nfloors	Zone 4 Floor - See L14.

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Adj *(cont.)*	Unit	Range	Definition (cont.)
L18	floors	1–nfloors	Zone 5 Floor - See L14.
L19	floors	1–nfloors	Zone 6 Floor - See L14.
L20	zones	0–6	Number of Zones - The maximum number of zones or parking floors in the group. **Notes:** • If this number is set larger than the number of cars, the parking floors (or zone floors) will be rotated on each assignment. • This parameter is usually set to a value less than total number of cars. See also: L14.
L25	2 sec.	0–60	Park Free Time - This adjustment sets the amount of time the car must be free in order to zone. See also: L14.
M10	—	1-5	Motor Starter Type. Values: 1 = Across Line - One Contactor 2 = Across Line -Two Contactor 3 = Delta One Contactor 4 = Wye-Delta -Two Contactor 5 = Electronic
M11	0.1 sec.	0-20	Motor Starter Time - Wye-Delta interval timer value.
M12	—	1-7	Valve Type - This adjustment sets the active solenoids during a high speed UP or DOWN run. Values: 1 = Up fast only, Down fast, and Down slow (tkE I-2/I-3 Valve) 2 = Up fast only, and Down fast only 3 = Up fast and Up slow, Down fast only 4 = Up fast and Up slow, Down fast and Down slow (Maxton Valve) 5 = Dump valve, Down fast, and Down slow 6 = Dump valve, and Down fast only 7 = Electronic Valve
M13	0.1 sec.	20-6000	Restart Delay - This adjustment sets the amount of delay time from the end of one run until the beginning of a new run (relevel runs do not count).
M14	0.1 sec.	1-30	Motor Stop Time (previous label, TMS Timer) - This adjustment sets the time delay between the Up Valve deactivation and the motor deactivation.
M79	min.	0-60	Landing Timer - If the car run time exceeds this value, the car is shutdown and requires a manual reset or power cycle.
O10	calls	0-nf	Anti-nuisance Car Calls - This adjustment sets the number of car calls answered (without passenger detection) before activating the anti-nuisance operation.
O11	inches	0–168	Hoistway Access Bottom Zone - When the car runs on hoistway access, this zone is the distance (in inches) above the bottom hoistway access floor. **Note:** Modifying this parameter requires SP & NP Configuration. See also: O21, O22, Z38, and Z39.
O12	floor	0–nf	Car Cycle Floor 1 - This adjustment sets the car cycle for floor 1, and the car will cycle between floors 1 and 2. To deactivate this feature, set either O12 or O13 to 0 (zero).
O13	floor	0–nf	Car Cycle Floor 2 - This adjustment sets the car cycle for floor 2, and the car will cycle between floors 1 and 2. To deactivate this feature, set either O12 or O13 to 0 (zero).
O14	floor	0–nf	Hall Independent Return Floor - This adjustment sets the return landing of the car (when Hall Independent Service is activated).
O15	F/R	0–1	Hall Independent Return Door - This adjustment assigns which door will open at the return landing (when the landing has with selective doors). Values: 0 = Front 1 = Rear

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Adj *(cont.)*	Unit	Range	Definition (cont.)
O16	F/R	0–1	Low Oil Door - During low oil operation, this adjustment sets the selective doors to open when returning to a landing. Values: 0 = Front 1 = Rear
O17	sec.	20-255	Low Oil Timer - This adjustment sets how long motor is allowed to run before activating the low oil operation. **Note**: If the floor-to-floor run time exceeds the timer value, the low oil operation actives.
O18	floor	0–nf	Massachusetts Medical Floor - This adjustment sets which landing the car returns to when Massachusetts Medical Service is activated. **Note**: If a landing does not have front/rear openings (based on the value of O19), the adjustment will be refused.
O19	F/R	0–1	Massachusetts Medical Door - This adjustment sets the selective door to open landing return during Massachusetts Medical Recall Service Operation. Values: 0 = Front 1 = Rear
O20	—	0–1	Independent Overrides Lockouts - This adjustment (when enabled) allows the Car Independent Service to override the Car Call Lockouts. Values: 0 = Disabled 1 = Enabled
O21	floor	2–nf	Hoistway Access Top Floor - This adjustment sets which landing is designated for the top landing of hoistway access operation. See also:O11, O22, Z38, and Z39.
O22	inches	0–168	Hoistway Access Top Zone - When the car runs on hoistway access, this zone is the distance (in inches) above the top hoistway access floor. **Note**: Modifying this parameter requires SP & NP Configuration. See also: O11, O22, Z38, and Z39.
O23	floor	1–nf	Viscosity Return Floor - This adjustment sets which return floor is used for viscosity operation.
O24	—	0–1	Transfer Calls on Door Close - This adjustment (if enabled) allows call transfers to occur while the doors are closing. Values: 0 = Disabled 1 = Enabled
O28	sec.	5–60	Non-Interference Time - This adjustment sets the delay (in seconds) after the doors close, and before SAPB calls can be latched. This time delay gives priority to car calls.
O29	sec.	5–30	Jack Resync Lower Time - This adjustment sets the time allowed for a jack resync to be completed once the car reaches the bottom and begins the resync operation.
O30	—	1-3	Jack Resync Interval - This adjustment sets the number of days between automatic jack resync operations. See also: FJR and JRT
O31	floor	1–nf	Jack Resync Landing - This adjustment sets the return landing for jack resync return.
O32	F/R	0–1	Jack Resync Door - This adjustment sets the preferred door to open at the jack resync return landing during jack resync operation. Values: 0 = Front 1 = Rear
O33	floor	1–nf	Lobby Recall Return Landing - This adjustment sets the landing that lobby recall will return to during lobby recall operation.

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Adj *(cont.)*	Unit	Range	Definition (cont.)
034	F/R	0–1	Lobby Recall Door - This adjustment sets the preferred door to open at the lobby recall landing during lobby recall operation. Values: 0 = Front 1 = Rear
035	sec.	0–3600	Fan-Light Shutdown Timer - This adjustment sets the time that the fan and light turn off (after all demand for service from the car has ended).
036	floor	1–nf	Capture Return Landing. Value: 0 = Stop car at the first available landing. 1 - nf = Specify which landing is the capture return landing.
037	F/R	0–2	Capture Door To Open. Values: 0 = Front 1 = Rear 2 = Both
038	—	0–1	Capture Door Operation. Values: 0 = The doors remain closed until opened with the CAPTD input. 1 = The doors open and stay open until deactivated.
039	—	0–1	Capture Override Independent Service. Values: 0 = No 1 = Yes
040	—	0–1	Capture Override Car Stop Switch. Values: 0 = No 1 = Yes
041	—	0–1	Attendant Service Call Latch - This adjustment allows the attendant service to latch car calls while the doors are open. Values: 0 = Disable the latch 1 = Enable the latch
042	—	0–1	This adjustment enables or disables the reverse car call cancel. Values: 0 = Enable 1 = Disable
043	—	0-65535	This adjustment enables or disables CE fixtures and VISTA monitoring. Values: 0 = Off 9 = Enable CE fixture on the car CAN channel 2.
044	# of starts	100-65535	Jack Resync Interval - This adjustment sets the number of motor starts necessary before the launch of automatic jack resync operations. See also: FJR, JRT, and 030
045	—	0–1	Enable Sabbath Operation.
055	F/R	0–1	Sabbath Operation Main Floor Opening - When the Sabbath Operation is initiated, this adjustment sets the door opening at the recall floor (that will open after homing), to begin dispatching to selected floors. Values: 0 = Front doors 1 = Rear doors

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Adj *(cont.)*	Unit	Range	Definition (cont.)
O56	—	0–1	Sabbath Operation Door Close Buzzer - When on Sabbath Operation (if enable) the buzzer will sound for 3 seconds prior to the doors closing after stopping at a Sabbath-served floor. Values: 0 = Buzzer disabled 1 = Buzzer enabled
P10	—	1–3	Slowdown Type. Values: 1 = Hoistway Up and Down slowdown switches 2 = Not used 3 = Encoder or tape-derived continuous position count slowdown
P11	—	0–8	Position Type. Values: 0 = No Position Count Measuring System 5 = ICON32 (CAN Selector)
P12	—	0–1	Rear Leveling Vane [Magnet] Zone Enable. Values: 0 = False (Front Leveling Zone) 1 = True (both Front and Rear Leveling Zones)
P15	—	0–1	Long Terminal Slowdowns. Values: 0 = Slowdown vane active only at slowdown points. 1 = Slowdown vane active at terminal landing floor levels.
P17	dpp	0–65535	Up Slowdown Distance (for tape selectors) - This adjustment sets the distance before the target floor where the Up slowdown begins. To cause an earlier slowdown, increase the P17 adjustment. **Notes**: • There are 512 dpp counts per foot.
P18	dpp	0–65535	Down Slowdown Distance (for tape selectors) - This adjustment sets the distance before the target floor where the Down slowdown begins. To cause an earlier slowdown, increase the P18 adjustment. **Notes**: • There are 512 dpp counts per foot.
P19	dpp	0–512	Encoder Level Distance - This adjustment sets the distance away from the floor level count that will cause the car to relevel. Encoder leveling also requires adjustment P21 = 1. **Note**: There are 512 dpp counts per foot.
P20	dpp	0–1024	Encoder Count Tolerance - The encoder position count must be within the encoder count tolerance, when level at that floor. • The encoder recalibration at LVU and LVD vanes must not change the encoder count by more than the encoder count tolerance. • Failure of either the position count or the recalibration will result in the loss of encoder position with recovery of a floor hunt or terminal hunt. • There are 512 dpp counts per foot.
P21	—	0–1	Encoder Leveling. Values: 0 = No encoder leveling 1 = Encoder leveling enabled
P22	dpp	0–16	Encoder Leveling Hysterisis - This adjustment prevents dithering on the re-level activation point. • When the car is level, then the value of P22 is added to P19 encoded level distance to increase the level distance by P22. • When the car crosses the re-level distance then the hysterisis is removed. • The effect is to create a dead zone where the car will not re-level when sitting on the re-level point. See also: P19, P21

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Adj *(cont.)*	Unit	Range	Definition (cont.)
R10	—	0–1	Inconspicuous Riser Monitor Operation - If enabled, the activation of an inconspicuous riser hall call will automatically activate the Inconspicuous Riser Operation. Values: 0 = Disable 1 = Enable
R13	—	0–1	Inconspicuous Riser Deactivates on Emergency Power - If enabled, the activation of emergency power will automatically deactivate the Inconspicuous Riser Operation. Values: 0 = Disable 1 = Enable
R26	sec.	1–255	Inconspicuous Riser Deactivation Time - This adjustment sets the minimum amount of time that the Inconspicuous Riser Operation will remain active (once it has been activated). **Note**: Typical adjustment value – The time required to enter the car and register a destination car call after response to an Inconspicuous Riser hall call.
R28	—	0–1	Inconspicuous Riser Deactivates Tenant Security - If enabled, the activation of the Inconspicuous Riser Operation will deactivate Tenant Security. Values: 0 = Disable 1 = Enable
S10	—	0–10	Security Type – This adjustment (for car functions only) is a type of required Tenant Security. The Type # must be coordinated with the group security type and the group functions. See S43. Values: 0 = (TYPE 0) No security required, or the group invokes security and car homes, and shuts down if the return landing (S11) is set 1 = (TYPE 1) Car Call Lockouts in the group 2 = (TYPE 2) Car Call Lockouts in group with override inputs in the car 3 = (TYPE 3-1) Car Call Lockouts in group with override inputs in the car 4 = (TYPE 3-2) Security override output only 5 = (TYPE 4) Group Hall Card readers is an invalid selection for the car 6 = (TYPE 5) Security Override output only 7 = (TYPE 6) Car Call Lockouts at the car level 8 = (TYPE 7) Car Call Lockouts at the car level (no group function) 9 = (TYPE 8) Contract configured security 10 = (TYPE 9) Contract configured security
S11	floor	1–nf	Security Return Landing - The car will home to this floor when placed on Security Operation. The car call for this floor will not be locked out.
S12	F/R	0–1	Door to Open Upon Return - This adjustment sets which door (front or rear) opens when car is homed to the Security Return Landing (see S11). Values: 0 = Front Door 1 = Rear Door
S13	—	0–1	Allow DOB on Security - This adjustment determines whether or not the Door Open Button (DOB) is allowed to open the doors at a secured opening. **Note**: This adjustment affects both front and rear doors. Values: 0 = DOB is not allowed at secured floor. 1 = DOB is allowed at secured floor.
S14	—	0–1	One Car Call at a Time on Security - This adjustment allows registration of one car call at a time while on security. All subsequent car call registrations will be inhibited. Values: 0 = Car calls are not limited to one at a time. 1 = Car calls are limited to one at a time.

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Adj *(cont.)*	Unit	Range	Definition (cont.)
S15	sec.	0–255	Security Homing Delay - When Security Homing is enabled, this adjustment sets the delay that must expire before the car is forced to the security return landing.
S16	0.1 sec.	0–255	Security Door Time - After security has homed the car, this adjustment sets the amount of time the doors will stand open when the car has arrived at the security return landing.
S17	—	0–1	Security Exit Not Required - This adjustment allows all landings in a building to be secured, including the security return landing. Values: 0 = Security return landing can not be secured. 1 = Security return landing can be secured.
S18	—	0–1	Security Homing Enabled Between Calls - This adjustment returns the car to the security return landing when it has no calls. Values: 0 = Security homing is not enabled. 1 = Security homing is enabled.
S39	—	0–3	Car Call Lockout Override Registers Car Call - This adjustment activates a lockout override input to register the associated car call. Values: 0 = Lockout Override activation does not register the corresponding car call. 1 = Lockout Override activation registers the corresponding car call. 2 = While on Program A security, the Lockout Override activation registers the corresponding car call. 3 = While on Program B security, Lockout Override activation registers the corresponding car call.
S40	floor	0–nf	Neonatal Landing A.
S41	floor	0–nf	Neonatal Landing B.
S42	floor	1–nfloors	Group Security Floor.
S43	—	0–11	Group Security Type - This adjustment (for group functions only) is a type of required Tenant Security. **See also:** S10 (CAR security type). Values: 0 = (TYPE 0) No security required, or the group invokes security and the car homes and shuts down if the return landing (S11) is set. 1 = (TYPE 1) Car call lockouts in the group. 2 = (TYPE 2) Car call lockouts in the group with override inputs in the car. 3 = (TYPE 3-1) Car call lockouts in the group with override inputs in the car. 4 = (TYPE 3-2) Security override output only. 5 = (TYPE 4) Group hall card readers is an invalid selection for the car. 6 = (TYPE 5) Security override output only. 7 = (TYPE 6) Car call lockouts at the car level. 8 = (TYPE 7) Car call lockouts at the car level (no group function). 9 = (TYPE 8) Contract configured security. 10 = (TYPE 9) Contract configured security. 11 = Ethernet security.
S50	floor	0–nf	Neonatal Landing C.
S51	floor	0–nf	Neonatal Landing D.
S52	—	—	Emergency Dispatch to Secured Floors. 0 = Disable 1 = Enable
V10	sec.	0–900	VIP Call Door Standing Time.
V11-V25	—	0–16	VIP Call Priority - Establish priorities for car response to VIP calls. Values: 0 = Disable service V11 = Highest priority call V25 = Lowest priority call

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Adj *(cont.)*	Unit	Range	Definition (cont.)
V26	—	0–2	VIP Calls Assigned by. Values: 0 = Best Car 1 = Priority 2 = Preferred (Security or Kiosk)
X10	—	0–1	Audible Car Call Enable - This adjustment sets an audible signal to alert a handicapped passenger that a car call has been accepted by the elevator. Values: 0 = Disable 1 = Enable
X11	—	0–2	Arrow Type - This adjustment sets the direction and preference arrows. Direction arrows indicate direction of actual car movement. Preference arrows indicate direction in which car has a preference to run. Values: 0 = Direction arrows 1 = Preference arrows 2 = Preference and direction arrows
X12	—	0–1	Car Lantern at Door Reversal Limit - This adjustment enables car lantern operation when the door reaches the reversal limit switch. Values: 0 = Disable 1 = Enable
X13	—	0–1	Car Lantern at Lobby - This adjustment enables car lantern operation when the car reaches the lobby. Values: 0 = Disable 1 = Enable
X14	0.1 sec.	1–48	Flasher Rate - This adjustment sets the flashing rate for the flashing jewels.
X15	—	0–4	Front Lantern Type - This adjustment sets the type of lanterns used for front openings. Values: 0 = No Lanterns 1 = Car Lanterns only 2 = Hall Lanterns only 3 = Both Car and Hall Lanterns 4 = Arrival Lanterns
X16	0.1 sec.	0–40	Lantern Delay at Lobby - This adjustment sets the delay time of lantern activation at lobby.
X17	—	0–2	Lantern Fire Position - This adjustment sets when the lanterns activate during fire service. Values: 0 = At slow-down 1 = At leveling zone 2 = At floor level
X18	0.1 sec.	0–20	Lantern Off Time - This adjustment sets the duty of the off time during on/off cycle of lanterns and gongs operation.
X19	0.1 sec.	0–20	Lantern On Time - This adjustment sets the duty of the on time during on/off cycle of lanterns and gongs operation.
X20	minutes	0–10	PI Timeout Time - This adjustment sets the time delay before the position indicators (PI) will turn off (if allowed by other options that may be active). **Note**: If this value is not set, PI Timeout will not be allowed.

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Adj *(cont.)*	Unit	Range	Definition (cont.)
X21	—	0–4	Rear Lantern Type - This adjustment sets the type of lanterns used for rear openings. Values: 0 = No Lanterns 1 = Car Lanterns only 2 = Hall Lanterns only 3 = Both Car and Hall Lanterns 4 = Arrival Lanterns
X22	—	0–2	Floor Passing Tone to Buzzer - This adjustment sets whether or not the buzzer in the car station will be used for the floor passing tone. Values: 0 = Buzzer in car station will not be used for floor passing tone. 1 = Buzzer in car station will be used for floor passing tone (only if FPT does not exist). 2 = Buzzer in car station will be used for floor passing tone.
X23	—	3–4	Number of Display Characters - This adjustment sets the number of display characters available in the Digital PI. **Note**: For the Hall PI, see X28. Values: 3 = 3-character display 4 = 4-character display
X24	0.1 sec.	1–20	GAL Tone Timer Adjustment - This adjustment sets the actual length of time that floor passing tone signal will be active (to indicate the car is passing or arriving at a new floor).
X25	1/16 sec.	1–48	Flashing Timer - This adjustment sets the flashing rate of flashing jewels.
X28	—	3–4	Hall CAN Channel PI Number of Display Characters. **Note**: For the Car PI, see X23. Set to 3 = 3 character display Set to 4 = 4 character display
Z12	—	0-2	Independent Service Call Latch - This adjustment allows Independent Service to latch car calls while the doors are open; effected by O78 Adjustment. Values: 0 = Disable independent service call latch. 1 = Enable independent service call latch, and flush all car calls on arrival. 2 = Enable independent service call latch, and leave further car calls latched on arrival.
Z15	—	0-3	Forcing Door Close - This adjustment is used for MAC DC door operators. DC will not be active during a run. Possibly used for freight, if required. Values: 0 = No MAC 1 = Front MAC Only 2 = Rear MAC Only 3 = Both Front and Rear MAC
Z26	—	0-255	—
Z33	sec.	0-3600	Car Fan Turn Off Timer - This adjustment sets the car idle time required before the cab fan turns off.
Z34	sec.	0-3600	Car Light Turn Off Timer - This adjustment sets the car idle time required before the cab lights turn off.
Z38	—	0-1	Hoistway Access Bottom Floor Door Selection. Values: 0 = Front 1 = Rear **Note**: Modifying this parameter requires SP & NP Configuration. See also: O11, O21, O22, and Z39.
Z39	—	0-1	Hoistway Access Top Floor Door Selection. Values: 0 = Front 1 = Rear **Note**: Modifying this parameter requires SP & NP Configuration. See also: O11, O21, O22, and Z38.

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Adj *(cont.)*	Unit	Range	Definition (cont.)
Z42	—	0,9,13	VIP Voice Message ID - This adjustment sets which message to activate with VIP Call. 0 = No message 9 = Code Blue message 13 = Custom message (requires custom chip).
Z43	—	0-1	Enable VIP Operation at Group Level. Values: 0 = Disable 1 = Enable
Z44	0.1 sec.	0-100	Run Stall Time (Required by California) - This adjustment sets a timer that quickly detects a stalled UP Run. This timer is intended to prevent faults such as: • A motor burn-out (in the event of a motor phase reversal). • Running Up after rupture valve has activated (to prevent emptying tank).

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Commands

Name	Definition
CJR	This command clears the jack resync statistics.
DCN	DCN Display CN stats and channel/port assignments where: Name = User friendly name of the node stored in the CPU On = State of CAN communication (Online=1, Offline=0) RxTot = Total number of frames received ID = CN address per CN jumpers JP(7,6,5,4) Ch = Physical channel (2=COP, 3=Hall) SP = Number of shared ports between cars (Remote I/O Box) TP = Number of total ports used by this CN channel: Where 2=>Car, 3=>Hall numPorts: 0-15 defines the number of ports used by this CN port0 port1...port15: For each physical CN port used by this CN, list the associated port in I/O layout matching the IMS I/O screen column.
DSL	Display Stabilized Leveling Distance.
ELD	Elevator Designator Display - This command displays the ASCII designator for this car. ELD shows the designator displayed by Owner's IMS Group Dispatch Window. See also PIG.
FCP	Floor Count Position Display Command - This command displays the encoder position count for each floor.
FJR	Force Jack Resync - This command signals an immediate request for a jack resync operation.
GET	GET Parameters - This command retrieves the saved parameters from the EEPROM and moves them into RAM. • The CPU only works with parameter values that are stored in its RAM memory. • To display a parameter that caused an out of range error, type GET and press **Enter**. • To eliminate a parameter error, enter a value in the appropriate range, save with the WRT Command, and recall with the GET Command.
GPN	Display Group Node - This command displays which node the car is communicating to (for group functions).
IOView	IOView - This command displays the I/O names by bit location.
IRL	Inconspicuous Riser Lockouts - This command displays front landings that are locked out by the Inconspicuous Riser Operation.
IRLR	Inconspicuous Riser Lockouts Rear - This command displays rear landings that are locked out by the Inconspicuous Riser Operation.
JRT	Jack Resync Time - This command sets the time of day that a jack resync will occur.
OSDM	Operating System Diagnostics - This command displays information to be sent to the log file.
PIG	Group Floor Display - This command changes the position indicator display for the group.
PRT	Pressure Relief Test - This command allows the car to run to the stop ring to perform a Pressure Relief Test. 1. Place the car at the top landing. 2. Put the car on Inspection Operation. 3. Run the car onto the Top Directional Limit (DL). 4. Issue the PRT Command. 5. Run the car UP on Inspection Operation past the DL.
SCA	Scan Call Assignment Table - This command reviews the scan assignment table of all floors that effect group (hall call) service.
SCC	Set Car Call - This command sets the nth landing car call. For rear calls, see SRC. See also: SCCB, SCCT, SDC, SRC, SRD, SRU, and SUC.
SCF	Set Close Floor - This command allows viewing and editing of the close floor table. Note: This automatically sets itself up during a hoistway scan. Close floor is 4–16 inches of travel between floors.
SCCB	Set Car Call Bottom - This command sets the bottom landing car call. To set, type SCCB and press **Enter**. • If the bottom landing has a front opening, the front car call will be set. • If the bottom landing does not have a front opening, the rear car call will be set. See also: SCC, SCCT, SDC, SRC, SRD, SRU, SUC

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Name *(cont.)*	Definition (cont.)
SCCT	Set Car Call Top - This command sets the top landing car call. To set, type SCCT and press **Enter**. • If the top landing has a front opening, the front car call will be set. • If the top landing does not have a front opening, the rear car call will be set. See also: SCC, SCCB, SDC, SRC, SRD, SRU, SUC
SDC	Set Down Call - This command simulates a group down hall call assignment to this car at nth landing; Only this car will respond to this call. See also: SCC, SCCB, SCCT, SRC, SRD, SRU, SUC
SFL	Secure Floor Lockout - This command locks out access to a floor from its car call button (Fire Service will override). Sets manual lockout or lockout override for front car call(s). A lockout will lock out a car call until an override is activated, and a lockout override will unlock a floor until it is removed.
SFLR	Secure Floor Lockout Rear - This command locks out access to a floor from its car call button (Fire Service will override). Sets manual lockout or lockout override for rear car call(s). A lockout will lock out a car call until an override is activated, and a lockout override will unlock a floor until it is removed.
SHL	Secure Floor Lock Command for Hall Calls - This command locks out access to a hall button on all cars in a group.
SPC	Safety Processor Configure - This command requires JP2 on the IOF Card to be across pins 1-2.
SRC	Set Rear Car Call - This command registers a rear car call from the UIT.
SRD	Set Rear Down Call - This command sets the nth landing rear down car call. See also: SCC, SCCB, SCCT, SDC, SRD, SRU, SUC.
SRU	Set Rear Up Call - This command sets the nth landing rear up car call. See also: SCC, SCCB, SCCT, SDC, SRD, SRU, SUC.
SSI	Special Security Initialization - This command restores the Job EPROM defaults. Note: Only for jobs with special security.
STU	Selector Setup Command - This command disregards the door limit and door zone inputs. **CAUTION** **Verify that the car door is closed before running the car from this command; equipment damage could result.**
STUA	Setup Automatic Command - This command performs an automatic hoistway learn; the car must be on Door Disconnect, and then the car will lower to the bottom DL and scan the hoistway.
SUC	Set Up Call - This command simulates a Group Up Hall Call assignment to this car at nth landing. **Note:** Only this car will respond to this call. See also: SCC, SDC, SRD, SRU, SUC.
TECC	Teach CAN Configuration - This command configures all online nodes.
TECCR	This command erases the TECC configuration information on all CAN nodes communicating on Channels 2 & 3.
TMP	This command displays the current ambient controller temperature.
UDLS	This command saves all the controller files to the USB stick drive folder **"**/tke/backup/xxnnnn."
UDLR	This command copies files from the "/tke/backup/xxnnnn" folder to the "/tke/update" folder.
UFWCNC	This command displays the CAN Node - Car Channel (CH:2).
UFWCNH	This command displays the CAN Node - Hall Channel (CH:3).
UFWSLF	This command updates the SEL from a USB flash drive.
UFWSPF	This command updates the Safety Processor software from a USB flash drive.
VER	Version - This command displays the version/revision of Car Generic Software, Safety Processor, NTSD Processor, OS, and FPGAs, as well as the job number of the controller for which the software was designed.
WJR	This command displays Jack resync activity.
WRT	Write Parameters - This command saves working values in RAM memory to the EEPROM (which protects the working values in the event the controller's power is lost). **Note**: On power-up, or if terminal is disconnected, the working values are read from EEPROM into RAM memory.
WRTG	This command writes group adjustments to all controllers connected to the group.

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Inputs and Outputs

Designator	Name
ABP	Security - A/B Program Switch
ABPJ	Security - A/B Program Jewel
AFI	At Floor Indicator
ALBA	Alarm Button Activated
ALBI	Alarm Button Activated Indicator
ALBL	Alarm Bell (Fire Bell)
ARGF	Active Roller Guide Fault
ARL1-ARL64	Arrival Lantern - Per Floor
ARLR1-ARLR64	Arrival Lantern Rear - Per Floor
ARNI	Automatic Run Indicator
ATB	Attendant Bypass Pushbutton
ATBI	Attendant Bypass Indicator
ATDB	Attendant Down Pushbutton
ATDC	Attendant Door Close Speed
ATDI	Attendant Down Indicator
ATT	Attendant Service
ATTI	Attendant Service Indicator
ATUB	Attendant Up Pushbutton
ATUI	Attendant Up Indicator
AUTOI	Automatic Operation Indicator
AUTO2I	Automatic and/or Security Operation Indicator
BUZ	Buzzer - Floor Passing, Fire, and Nudging
BYSG	Bypass Safety Gear Switch
C1-C64	Car Call - Combination I/O
CAPT	Capture Operation
CAPTD	Capture Operation Door Open
CAPTI	Capture Operation Indicator
CAPTR	Capture Operation Reset
CB	Hoistway Door Closed Bottom
CB1-CB64	Code Blue Call - Combination I/O
CBAI	Code Blue Active Indicator (Per Car)
CBELL	Freight Door Call Bell
CBI1-CBI64	Code Blue Call - Input
CBJG	Code Blue Indicator (Any Car)
CBO1-CBO64	Code Blue Call - Output
CBR1-CBR64	Code Blue Call - Rear - Combination I/O
CBRI1-CBRI64	Code Blue Call - Rear - Input
CBRO1-CBRO64	Code Blue Call - Rear - Output
CCEM	Car Call Ind Enable Main
CCER	Car Call Ind Enable Remote
CCIE	Car Call Indicator Enable
CCM	Control Cutout Main Station
CCPO	Car Call Panel Open
CCR	Control Cutout Remote Station

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Designator *(cont.)*	Name
CDBI	Car Door Bypass Indicator
CDBM	Car Door Bypass Monitor
CDBM2	Car Door Bypass - Monitor #2
CDCF	Car Door Contact Front
CDCR	Car Door Contact Rear
CF	Hoistway Door Closed Front
CHKDS	Check Doors and Stop Inputs
CI1-CI64	Car Call - Input
CL1-CL64	Car Call Lockout
CLD	Car Lantern - Down
CLDR	Car Lantern - Down Rear
CLFS	Car Light/Fan Shutdown
CLI1-CLI64	Car Call Lockout Indicator
CLIR1-CLIR64	Car Call Lockout Indicator - Rear
CLO1-CLO64	Car Call Lockout Override
CLOR1-CLOR64	Car Call Lockout Override - Rear
CLR1-CLR64	Car Call Lockout - Rear
CLU	Car Lantern - Up
CLUR	Car Lantern - Up Rear
CO1-CO64	Car Call - Output
CR	Hoistway Door Closed Rear
CR1-CR64	Car Call - Rear - Combination I/O
CRI1-CRI64	Car Call - Rear - Input
CRO1-CRO64	Car Call - Rear - Output
CST	Car Stop Switch Monitor
CSTI	Car Stop Switch Indicator
CT	Hoistway Door Closed Top
D2-D64	Hall Call - Down - Combination I/O
DAD	Direction Arrow - Down
DAU	Direction Arrow - Up
DBEH	Door Button Enable - Hall - Front
DBEHR	Door Button Enable - Hall - Rear
DC	Door Close
DCA	Door Close Assist
DCAD	Door Close Auto Disable - Front
DCADR	Door Close Auto Disable - Rear
DCAE	Door Close Auto Enable - Front
DCAER	Door Close Auto Enable - Rear
DCAR	Door Close Assist - Rear
DCB	Door Close Button - Front
DCBR	Door Close Button - Rear
DCL	Door Close Limit
DCL6	Door Close Limit 6"
DCL6R	Door Close Limit 6" - Rear
DCLR	Door Close Limit - Rear
DCN	Door Close Nudging
DCNR	Door Close Nudging - Rear
DCR	Door Close - Rear

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Designator *(cont.)*	Name
DD	Door Disconnect
DHB	Door Hold Button
DHBR	Door Hold Button - Rear
DHBUZ	Door Hold Buzzer - Front
DHBUZR	Door Hold Buzzer - Rear
DHI	Door Hold Indicator
DHIR	Door Hold Indicator - Rear
DHS	Door Hold Switch
DHSR	Door Hold Switch - Rear
DI2-DI64	Hall Call - Down - Input
DISBR	Distress Buzzer Reset
DISBZ	Distress Buzzer
DISI	Distress Indicator
DISVIP	Input - If active, the car will not be considered for VIP Operation
DJ1-DJ64	Down Hall Call Lockout Jewel Outputs
DL2-DL64	Hall Call - Down - Lockout
DLB	Direction Limit - Bottom
DLO2-DLO64	Hall Call - Down - Lockout Override
DLOR2-DLOR64	Hall Call - Down - Rear - Lockout Override
DLR2-DLR64	Hall Call - Down - Rear - Lockout
DLT	Direction Limit Top
DO	Door Open
DO1	Door Open
DO1R	Door Open Rear
DO2-DO64	Hall Call - Down - Output
DOB	Door Open Button - Front
DOBR	Door Open Button - Rear
DOH	Door Open High Speed
DOHR	Door Open High Speed - Rear
DOI	Door Open Indicator
DOIR	Door Open Indicator - Rear
DOL	Door Open Limit
DOLR	Door Open Limit - Rear
DOPE	Door Operation Enable - Front
DOPER	Door Operation Enable - Rear
DOR	Door Open - Rear
DORL	Door Open Reversal Limit
DORLR	Door Open Reversal Limit - Rear
DPK	Down Peak Operation
DPKJ	Down Peak Jewel
DR2-DR64	Hall Call - Down - Rear - Combination I/O
DRI2-DRI64	Hall Call - Down - Rear - Input
DRJ1-DRJ64	Down Rear Hall Call Lockout Jewel Outputs
DRO2-DRO64	Hall Call - Down - Rear - Output
DSPJ	Dispatch Failure Jewel
DSPJ1-DSPJ16	Car # Dispatch Failure Jewel
DWDI	Door Watchdog Indicator
DWDRI	Door Watchdog Rear Indicator

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Designator *(cont.)*	Name
DZ1	Door Zone #1
EE	Electric Eye
EER	Electric Eye - Rear
EES	Electric Eye Shutoff Switch
EESR	Electric Eye Shutoff Switch - Rear
EL1-EL16	Car # Emergency Power Lowering Jewel
EMDIS	Emergency Dispatch Operation (Sabbath Operation)
EPA	Emergency Power - Automatic
EPAI	Emergency Power - Acknowledge Indicator
EPALI	Emergency Power - At Designated Landing Indicator
EPCS1-16	Emergency Power - Manual Car Select - Car #n
EPCSI	Emergency Power - Car Selected Indicator
EPEPI	Emergency Power - Emergency Power Indicator
EPJ	Emergency Power - Emergency Power Indicator
EPLDI	Emergency Power - Emergency Power Car At Landing Indicator
EPLI	Emergency Power Lowering Indicator
EPNP	Emergency Power - Normal Power
EPNPI	Emergency Power Normal Power Indicator
EPW	Emergency Power Warning
ES1-ES16	Car # Emergency Power Selection Jewel
EZNI	Express Zone Indicator
F1-F64	Freight SAPB Call - Combination I/O
FALI	Failure Indicator
FALNI	Not Failed Indicator
FDL1-FDL9	Freight Door Landing Signal
FDR	Freight Door Reset - Front
FHS	Flashing Hall Signs
FI1-FI64	Freight SAPB Call - Input
FL1-FL64	Hall Call - Floor Lockout
FLO1-FLO64	Hall Call - Floor Lockout Override
FLOR1-FLOR64	Hall Call - Rear - Floor Lockout Override
FLR1-FLR64	Hall Call - Rear - Floor Lockout
FO1-FO64	Freight SAPB Call - Output
FPT	Floor Passing Tone
FPTON	Floor Passing Tone On
FR1-FR64	Freight SAPB Call - Rear - Combination I/O
FRC	Freight Retiring Cam - Front
FRI1-FRI64	Freight SAPB Call - Rear - Input
FRO1-FRO64	Freight SAPB Call - Rear - Output
FRODO	Freight Door Open - Front
FRODOR	Freight Door Open - Rear
FS1A	Fire Service Phase 1 Active (Front)
FS1AI	Fire Service - Phase 1 Indicator
FS1FI	Fire Service Phase 1 Switch Off Indicator
FS1I	Fire Service - Phase 1 Indicator
FS1R	Fire Service Phase 1 Recall Active (Front)
FS1RR	Fire Service Phase 1 Recall Active (Rear)
FS2A	Fire Service Phase 2 Active (Front)

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Designator *(cont.)*	Name
FS2F	Fire Service Phase 2 Switch Off (Front)
FS2H	Fire Service Phase 2 Switch Hold (Front)
FS2HR	Fire Service Phase 2 Switch Hold (Rear)
FS2HX	Fire Service Phase 2 Switch Hold (Front) (Rev Logic)
FS2HXR	Fire Service Phase 2 Switch Hold (Rear) (Rev Logic)
FS2I	Fire Service - Phase 2 Indicator
FSA	Fire Service Active (Front)
FSAFI	Fire Service - Alternate Floor Indicator
FSAL	Fire Service at Designated Landing (Front)
FSBZ	Fire Service Buzzer
FSC1	Fire Service - Car - On
FSC2	Fire Service - Car - Off
FSCC	Fire Service - Call Cancel
FSDFI	Fire Service - Door Failed Indicator
FSDO	Fire Service - Fireman's Door Open
FSE	Fire Service Sensor - Equipment
FSH1	Fire Service - Hall - Main - On
FSH1A	Fire Service - Hall - Main - On
FSH2	Fire Service - Hall - Main - Off
FSH2A	Fire Service - Hall - Main - Off
FSH3	Fire Service - Hall - Aux - On
FSH3A	Fire Service - Hall - Aux - On
FSH4	Fire Service - Hall - Aux - Off
FSH4A	Fire Service - Hall - Aux - Off
FSH5	Fire Service - Hall - Main - Reset (Bypass)
FSH5A	Fire Service - Hall - Main - Reset (Bypass)
FSHX	Fire Service Phase 2 Switch Hold (Front)
FSHXR	Fire Service Phase 2 Switch Hold (Rear)
FSI	Fire Service Indicator (Phase 1 or 2)
FSM	Fire Service Sensor - Main
FSMFI	Fire Service - Main Floor Indicator
FSPO	Fire Service Panel Open
FSR	Fire Service Phase 1 Recall Active
FSRI	Fire Service Return Indicator
FSRR	Fire Service Rear Door Closing PH1/PH2
FSSR	Fire Service Sensor Reset
FST	Fire Service Sensor - High Temperature
FSX	Fire Service Sensor - Auxiliary
GCL1-GCL64	Car Call Lockout - Group Wide
GCLR1-GCLR64	Car Call Lockout - Rear - Group Wide
HABD	Inspection - Hoistway Access - Bottom - Down
HABDM	Inspection - Hoistway Access - Bottom - Down - Monitor
HABU	Inspection - Hoistway Access - Bottom - Up
HABUM	Inspection - Hoistway Access - Bottom - Up - Monitor
HATD	Inspection - Hoistway Access - Top - Down
HATDM	Inspection - Hoistway Access - Top - Down - Monitor
HATU	Inspection - Hoistway Access - Top - Up
HATUM	Inspection - Hoistway Access - Top - Up - Monitor

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Designator *(cont.)*	Name
HCIE	Hall Call Indicator Enable
HCP	Hall Call Power Monitor
HDBI	Hoistway Door Bypass Indicator
HDBM	Hoistway Door Bypass - Monitor
HDBM2	Hoistway Door Bypass - Monitor #2
HDFI	Hoistway Door Interlock Front Closed Indicator - Output
HDRI	Hoistway Door Interlock Rear Closed Indicator - Output
HDIFI	Hoistway Door Interlock Failure Indicator
HDIFRI	Hoistway Door Interlock Failure Rear Indicator
HES	Hospital Emergency Service
HESI	Hospital Emergency Service Active Indicator
HL1-HL64	Hall Lantern - Landing Signal
HLD2-HLD64	Hall Lantern - Down - Front - Per Landing
HLDR2-HLDR64	Hall Lantern - Down - Rear - Per Landing
HLU1-HLU63	Hall Lantern - Up - Front - Per Landing
HLUR1-HLUR63	Hall Lantern - Up - Rear - Per Landing
HM1	Homing #1 - Lobby Park
HM1I	Homing #1 Indicator
HM1NI	Homing #1 Not Active Indicator
HM2	Homing #2
HM2I	Homing #2 Indicator
HM3	Homing #3
HM3I	Homing #3 Indicator
HMCLI	Homing - Car At Lobby Indicator
HML	Homing - Lobby Recall
HMLI	Homing - Lobby Recall Operation Active Indicator
HMLNI	Homing - Lobby Recall Operation Not Active Indicator
HPID	Hall PI Disable
IB	Hoistway Door Interlock Bottom
ID2-ID64	Inconspicuous Riser Call - Down - Combination I/O
IDI2-IDI64	Inconspicuous Riser Call - Down - Input
IDO2-IDO64	Inconspicuous Riser Call - Down - Output
IDR2-IDR64	Inconspicuous Riser Call - Down - Rear - Combination I/O
IDRI2-IDRI64	Inconspicuous Riser Call - Down - Rear - Input
IDRO2-IDRO64	Inconspicuous Riser Call - Down - Rear - Output
IF	Hoistway Door Interlock Front
INCL	Inspection - Pit
INCLM	Inspection - Pit - Monitor
INCN	Inspection - Controller
INCND	Inspection - Controller - Down
INCNM	Inspection - Controller - Monitor
INCNU	Inspection - Controller - Up
INCTD	Inspection - Car Top - Down
INCTE	Inspection - Car Top - Enable Monitor
INCTM	Inspection - Car Top - Monitor
INCTU	Inspection - Car Top - Up
INHAM	Inspection - Hoistway Access Monitor
INRB	Inspection Run Bug

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Designator *(cont.)*	Name
INRBD	Inspection Run Bug Down
INRBU	Inspection Run Bug Up
IR	Hoistway Door Interlock Rear
IRO	Inconspicuous Riser Operation
IROI	Inconspicuous Riser Operation Indicator
IRS	Inconspicuous Riser Activation Switch (Not Implemented)
ISC	Independent Service - Car
ISCI	Independent Service - Car - Indicator
ISH	Independent Service - Hall
ISHI	Independent Service - Hall - Indicator
IT	Hoistway Door Interlocks Top - Series connection of all non-hoistway access front door interlocks.
IU1-IU63	Inconspicuous Riser Call - Up - Combination I/O
IUI1-IUI63	Inconspicuous Riser Call - Up - Input
IUL	In Use Light
IUO1-IUO63	Inconspicuous Riser Call - Up - Output
IUR1-IUR63	Inconspicuous Riser Call - Up - Rear - Combination I/O
IURI1-IURI63	Inconspicuous Riser Call - Up - Rear - Input
IURO1-IURO63	Inconspicuous Riser Call - Up - Rear - Output
LBYST	Lobby Stop If Passing Lobby Stop At Lobby
LVD	Level Down
LVU	Level Up
LWA	Loadweigher - Anti-nuisance
LWB	Loadweigher - Bypass
LWBI	Loadweigher - Bypass - Indicator
LWD	Loadweigher - Dispatch
LWO	Loadweigher - Overload
LWOI	Loadweigher - Overload - Indicator
MCC1	Motor Contactor Control #1
MCD	Motor Contactors De-energized
MCF	Motor Contactor Fault
MCM	Motor Contactor Output Monitor
MEC	Medical Emergency - Car
MEH	Medical Emergency - Hall
MEHI	Medical Emergency - Hall Indicator
MEI	Medical Emergency - Indicator
MTSTRT	Motor is Starting - Indicator - Output
MUTS	Motor Up To Speed Input from Electronic Motor Starter (EMS), used by controller for MCE & MCD states.
NATLA	Neonatal Hold at Landing A
NATLB	Neonatal Hold at Landing B
NATLC	Neonatal Hold at Landing C
NATLD	Neonatal Hold at Landing D
NATLH	Neonatal Hold at Any Landing
NATLI	Neonatal Operation Indicator
NATX	Neonatal Operation Inputs; x = Floor Number (Baby Monitor)
OFLNI	Off Line Indicator
OOSI	Out of Service Indicator
PI1-PI64	Position Indicator - Light Up - Car or Controller For Car and Hoistway
PIA1-PIA64	Position Indicator.- Light Up - Alternate Landing Hoistway

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Designator *(cont.)*	Name
PID1-PID64	Position Indicator - Digital Disc - Car or Controller for Car and Hoistway
PIEx	Position Indicator - Per floor cascading discrete PI. Active during Auto and Fire Service.
PIFx	Position Indicator - Per floor cascading discrete PI. Active during Auto—Disabled during Fire Service.
PIH1-PIH64	Position Indicator - Main Landing Hoistway
PHLBUZ	Phone Line Buzzer
PHLFLT	Phone Line Fault
PHLI	Phone Line Indicator
PHLRST	Phone Line Reset
RCS	Remote Car Station Activation - Input - Door operation field programmable via I/O. Requires setting D32=0. All inactive I/O will default to D32=0.
RCSD1	Remote Car Station Door 1 - The doors do not automatically open upon arrival at a car call. Doors open fully with DOB/DOBR, and will not close until DCB/DCBR is activated.
RCSD2	Remote Car Station Door 2 - The doors automatically open upon arrival at a car call, and after a delay, will close back (similar to door operation on normal automatic operation).
RCSD3	Remote Car Station Door 3 - The doors do not automatically open upon arrival at a car call. The doors open fully with DOB/DOBR, but will close when DOB/DOBR is released.
RCSD4	Remote Car Station Door 4 - The doors do not automatically open upon arrival at car call. • The doors will open with constant pressure on DOB/DOBR, but will close if DOB/DOBR is not maintained until the doors are opened fully. • The doors will not close until DCB/DCBR is activated, but will reopen if DCB/DCBR is not maintained until the doors are closed fully.
RCSI	Remote Car Station Active Indicator
RUNDLY	Delay Motor Start Sequence - Input
SABO	Sabbath Control
SABOI	Sabbath Control Indicator
SAFC	Safety Circuit Control - 186
SAFECAR	Safe Car Switch Monitor
SAFEI	Safeties Indicator
SAFGR	Safety Gear Switch Monitor
SAFHW	Safe Hoistway Switches Monitor
SAFMR	Safe Machine Room Switches Monitor
SAFPLD	Safe PLD Monitor
SAFRB	Safe Runbug Stop Switch Monitor
SAFSP	Safe Safety Processor Monitor
SE	Safety Edge - Front
SEIS	Seismic Operation
SEISI	Seismic Operation Indicator
SEISR	Seismic/Counterweight Derail Operation Reset
SER	Safety Edge - Rear
SOA	Security Operation Activation
SOABP	Car Logic Not On Program B (A/B Switch Inactive) and Group not on Program B
SOLOA	Security Override Lockouts
SOO	Security Operation Override
SOTL	Security Operation Total Lockout
SOTLI	Security Operation Total Lockout Indicator
SOTOA	Security Operation Total Override Active
SSL1-SSL128	Smoke Sensor Landing (Input) - During the time that Code Blue is overriding PH1 Fire Service, an active SSL input inhibits the car calls at the corresponding landing.
STBC	Shunt Trip Breaker Control

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Designator *(cont.)*	Name
TEMPOK	Ambient Controller Temperature OK
TFE	Transfer Floor Operation Enable
THLK	Total Hall Call Lockout
TLOJ	Total Lockout Jewel
TMPI	Tamper Indicator
TMPIR	Tamper Indicator Reset
U1-U15	Hall Call - Up - Combination I/O
UI1-UI63	Hall Call - Up - Input
UJ1-UJ64	Up Hall Call Lockout Jewel Outputs
UL1-UL63	Hall Call - Up - Lockout
ULO1-ULO63	Security Up Hall Call Override Inputs
ULOR1-ULOR63	Hall Call - Up - Rear - Lockout Override
ULR1-ULR63	Hall Call - Up - Rear - Lockout
UO1-UO63	Hall Call - Up - Output
UPK	Up Peak Operation
UPKJ	Up Peak Jewel
UR1-UR63	Hall Call - Up - Rear - Combination I/O
URI1-URI63	Hall Call - Up - Rear - Input
URJ1-URJ64	Up Rear Hall Call Lockout Jewel Outputs
URO1-URO63	Hall Call - Up - Rear - Output
VIP1-VIP64	VIP Call - Combination I/O
VIPI	VIP Indicator per Car
VIPJG	VIP Indicator any Car
VIPR1-VIPR64	VIP Rear Call - Combination I/O
VPI1-VPI64	VIP Call - Input
VPO1-VPO64	VIP Call - Output
VPRI1-VPRI64	VIP Rear Call - Input
VPRO1-VPRO64	VIP Rear Call - Output

No Known Application Rule I/O

These I/O exist in the software but currently have no known application rules.

Designator	Name
ACCI	Audible Car Call Indicator
ADC	Auxiliary Door Close
ADCL	Auxiliary Door Close Limit (DCL)
AES	Security-activate Hall Call Enable Subset
ALB	Alternate Lobby Operation
ALTJ	Alternate Floor Fire Service Jewel
AOV	Security - Activate Car Call Overrides
ARDC	Auxiliary Rear Door Close
ARDCL	Auxiliary Rear Door Close Limit (DCL)
ARL	Arrival Lantern
ARLR	Arrival Lanterns - Rear
ATD	Attendant Operation Door Speed
ATDR	Attendant Operation Door Speed - Rear
BEEP	Coded Car Call Entry Code Button Acknowledge

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Designator *(cont.)*	Name
BFSHD	Shutdown
BFWAR	Warning
BKLT	Door Open Button Back light
CCREG	Car Call Registered To Allow Freight Doors To Close (Chicago Fire Service)
CFSW	Car Fan Operation Switch - OCFTO
CFTO	Car Fan Turn Off
CHM	Chimes, See OPIL
CLSW	Car Fan Operation Switch
CLTO	Car Light Turn Off
DCIR	Door Closing Indicator - Rear
DDO	Disable Doors And Leave Car Online For Pressurized Door Operation
DFSRM	Multiple Power Units
DH2-DH64	Hall Call Down (High Voltage)
DHR2-DHR64	Hall Call Down Rear (High Voltage)
DISO	Distress Operation
DISOB	Lockdown Operation - Secondary Input
DISOI	Distress Operation Indicator
DIX	Discrete Front Down Halls Call
DIXR	Discrete Rear Down Halls Call
DOLI	Door Open Limit Indicator
DOLRI	Door Open Limit Rear Indicator
DOX	Discrete Front Down Halls Call
DOXR	Discrete Front Down Halls Call
DSSRM	Multiple Power Units
DZM	Door Zone Monitor
DZMR	Door Zone Monitor - Rear
EC	Extra Riser of Car Calls
ECI	Extra Riser of Car Calls
ECO	Extra Riser of Car Calls
ECR	Extra Riser of Car Calls
ECRI	Extra Riser of Car Calls
ECRO	Extra Riser of Car Calls
ED2-64	Handicap Hall Call Down
EDI2-64	Handicap Hall Call Down
EDO2-64	Handicap Hall Call Down
EDR2-64	Handicap Hall Call Down
EDRI2-64	Handicap Hall Call Down
EDRO2-64	Handicap Hall Call Down
ELO1-16	Emergency Power Lowering Complete
ELOJ1-16	Emergency Power Lowering Completed Jewel
EP1-EP16	Emergency Power Manual Select Car #
EPDI	Emergency Power Disable
EPDO	Emergency Power Disable Jewel
EPLOJ	Emergency Power Lowering Jewel
EPSE	Emergency Power Auto Selection Enabled
EPSLJ	Emergency Power Selection Jewel
EU1-63	Handicap Hall Call Up
EUI1-63	Handicap Hall Call Up

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Designator *(cont.)*	Name
EUO1-63	Handicap Hall Call Up
EUR1-63	Handicap Hall Call Up
EURI1-63	Handicap Hall Call Up
EURO1-63	Handicap Hall Call Up
FALDI	Failure Indicator Output (Delayed)
FDFC	Freight Door Force Close (Freight Doors TAC20, TAC60)
FDFCR	Freight Door Force Close Rear
FPS1I	Flooded Pit Indicator
FPS2	Flooded Pit
FPS2I	Flooded Pit Indicator
FS1NI	Fire Service Phase 1 Switch On Indicator
FS1RI	Fire Service Phase 1 Switch Reset Indicator
FS2FI	Fire Service Phase 2 Switch Off Indicator
FS2HI	Fire Service Phase 2 Hold Indicator
FS2NI	Fire Service Phase 2 Switch On Indicator
FSCDB	In-car Secondary Fire Switch Door Bypass
FSCDM	In-car Secondary Fire Switch Door Bypass Monitor
FSDB	Fire Service Door Bypass
FSDOM	Fire Service Fireman's Door Open Monitor
FSDOX	Fire Phase 1 Alternate Floor Door Open
FSH6	Fire Service Phase 1 On (Tertiary Switch)
FSH7	Fire Service Phase 1 Off (Tertiary Switch)
FSH8	Fire Service Phase 1 On (Quaternary Switch)
FSH9	Fire Service Phase 1 Off (Quaternary Switch)
FSTFL	Fire Service Top Final Limit
GL1M	Gate And Lock Monitor #1
GL2M	Gate And Lock Monitor #2
HCLA	Security - Hall Call Lockout Activate
HCLD	Hall / Car Lantern - Down - Front
HCLU	Hall / Car Lantern - Up - Front
HCPR	Hall Call Power Rear
HFJ	Hall Call Power Failure Jewel
HFSJ	Phase One Fire Service Jewel
HG	Bit-packed Per-floor Combined Up & Down Hall Gongs
HGR	Bit-packed Per-floor Combined Up & Down Hall Gongs
HLPWY	Help is on the way
HOLD	Next Up Hold Car
HPZ1	Hall Call Power Zone 1
HPZ1R	Hall Call Power Zone 1 Rear
HPZ2	Hall Call Power Zone 2
HPZ2R	Hall Call Power Zone 2 Rear
HPZ3	Hall Call Power Zone 3
HPZ3R	Hall Call Power Zone 3 Rear
INDOP	Independent Operation
JRSI	Jack Resync Indicator
KPM	Coded Car Call Entry Car Station In Keypad Mode
LWPI	Load Weigher - Percent Indicator
MAINJ	Main Floor Fire Service Jewel

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Designator *(cont.)*	Name
MCFB	Multiple Power Units
MGDI	Sequential Starting Disable
MGDO	Sequential Starting Disable
MOV	Moving Indicator
MTO	Material Transfer Operation
MTOI	Material Transfer Operation Indicator
NOVIP	Disable VIP Service with Key Switch
NXUA	Next Up Active
NXUCA	Next Up Car Active
NXUCD	Next Up Car Dispatch
NXUCR	Next Up Car Dispatch Rear
OLLD	Oil Level Low Door
OFLO	Emergency Power All Cars Failed Auto Selection
PDN	Selector Moving Down Indication
PIC1-PIC64	Position Indicator - Discrete - Car
PUP	Selector Moving Up Indication
REMOP	Remote Operation
RSQ	Rescue Recall Service (In Supervisor Panel)
RSQJ	Rescue Recall Service (In Supervisor Panel) Indicator
RSQL	Rescue Operation Switch - Left Car (In Control Panel)
RSQLJ	Rescue Operation Switch - Left Car (In Control Panel) Indicator
RSQR	Rescue Operation Switch - Right Car (In Control Panel)
RSQRJ	Rescue Operation Switch - Right Car (In Control Panel) Indicator
RTC1-RTC16	Real Time Clock Output #1- Real Time Clock Output #16
RUNOK	Run is OK
SCANDN	Scan PI Down Reg CC When PI = Floor
SCANUP	Scan PI Up Reg CC When PI = Floor
SEIOI	Sound Buzzer if any of the Features are Activated and Seismic is not Deactivated
SEISJ	Secondary Seismic Jewel
SOLAI	Total Lockout Override Indicator
THLKJ	Total Hall Call Lockout Jewel
UFSRM	Multiple Power Units
UH1-UH64	Hall Call Down (High Voltage)
UHR1-UHR64	Hall Call Down Rear (High Voltage)
UIX	Discrete Front Up Halls Calls
UIXR	Discrete Rear Up Halls Calls
UOX	Discrete Front Up Halls Calls
UOXR	Discrete Rear Up Halls Calls
USSRM	Multiple Power Units
XSEC	Security Operation Override
ZONE1	Output Goes Active when Car is Below Specified Zone
ZONE2	Output Goes Active when Car is Between Upper and Lower Zones

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Control System Fault Codes

Code	Description	Possible Causes/Solutions
981	Terminal slowdown was activated before normal slowdown; This fault does not shut the car down.	• Slowdown magnet placement, P17/P18 adjustment, or valve adjustment.
1002	OS could not allocate memory - This fault is mainly used during software development, but proves useful to detect operational issues on installed units.	• Noise levels that affect CPU operation. • Defective CPU software allocates too much memory (only when installing new software version).
1003	Software scheduler overrun.	—
1004	Gate and locks opened during a run - A car or hoistway interlock opened while the car was running.	• Car doors clipping interlocks. • Defective gate contact. • Defective wiring.
1005	DOL was detected while HW closed.	• A defective DOL input. • A defective HDIF input.
1006	The hoistway interlock failed to close.	• A defective hoistway door contact. • A blocked hoistway door.
1007	The safety string opened during a run & caused an emergency stop.	• An open device in the safety string. Clipped interlock
1008	The motor contactor is already energized (MCD/MCE) - A run initiation was issued, but either MCD was already inactive, or MCE was already active.	• Software activation error. MUTS signal wiring. • Defective relays/contactors for across the line starting..
1009	• A valve contact error (MCD is open). • A Down run failure. • Either the valves or MC are not ready. • MCD is inactive, or MCE is active during a Down run.	• Valve monitor input shows active at wrong time - output wiring, solenoid, IOF Card. • MUTS signal wiring. • Defective relays/contactors for across the line starting.
1010	• Motor contactor error (MCD Open). • MCD failed to energize or MCE failed to de-energize after run.	• Defective MCD input. • Defective MCE input. • Defective MC contact. MUTS signal wiring. • Defective relays/contactors for across the line starting.
1011	• The motor contactor failed to energize (MCD/MCE). • MCD is active, or MCE is inactive after a run. • Motor Contactor Fault (MCF) input is activated.	Possible Causes: • A defective MCD/MCE input. • A defective MC1/MC2 auxiliary contact. • A defective MCF input. • MUTS input. • A UTS output from EMS. EMS parameter is not correct.
1012	Job image error - Invalid number of floors.	—
1013	NV hardware failure - The software issued a command to modify non-volatile memory that was not completed, or completed with invalid results.	—
1014	NV checksum error - The data in non-volatile memory was lost.	Possible Causes: • Memory error. • Bad/low CPU battery. Possible Solution:. • Issue a GET Command followed by a WRT Command.
1015	Software error - The software is making an invalid NV request.	—
1016	Software error - The NV is full and cannot hold another client structure. There is no more room for data in non-volatile memory.	—
1017	Software error - A change in run type occurred during a run. The car is not performing an emergency stop and the software has changed the type of run.	—

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Code	Description *(cont.)*	Possible Causes/Solutions *(cont.)*
1018	Normal limit error - Both of the top and bottom normal limits (DL, NTST, NTSB) are active at the same time.	• CAN loading incorrect/noise on Car CAN. • Magnet issue with selector. • A defective I/O.
1019	• The normal limits and the car position do not agree. • The selector is not lost. • The car position is not at the top or bottom floor. • The I/O DL, NTST, NTSB do not agree.	• CAN loading incorrect/noise on Car CAN. • Magnet issue with selector.
1020	Software error - The I/O database has been corrupted, or the checksum for I/O has changed.	—
1021	• A safety node is offline. • Inspection indicates an invalid I/O condition. • The status of an I/O indicates a combination of active and inactive inputs that are not allowed.	• A wiring error. • Defective I/O: IN, INOP, INHA, INCN, INCT, INHAM.
1022	Run monitor - The run protect timer has expired.	• Ran too long at leveling speed.
1023	Run monitor - The wrong direction run. The software issued a command to run in one direction, but the car actually ran in the other direction.	—
1024	Excessive number of re-levels - A fault is issued if the elevator re-levels more than 25 times within a 5-minute interval.	• A defective valve. • A mis-adjusted valve.
1028	The selector shows the level outside of the door zone - The inputs indicate that the car is level at the floor-at some location other than within the door zone.	—
1029	LU and LD are active at same time - This fault indicates that both level up and level down inputs are active at the same time.	—
1030	Leveling sequence error - The leveling inputs were activated in an invalid sequence.	—
1031	Selector setup error - The selector was not properly setup.	• Incorrect number of leveling vanes was detected. • A bad floor position setup. • The selector setup is incomplete. • Scanning the hatch too fast.
1032	False slowdown interrupt - The slowdown interrupt was detected with no active slowdown input.	—
1033	Selector position error - The selector position is out of step with either the encoder, the slowdown, or the BP position.	—
1034	Expansion card error - The incorrect expansion card type was returned.	• The wrong type of expansion card was installed. • A defective expansion card or cable. • An expansion cable was installed backwards. • An incorrect expansion card type.
1040	Door watchdog closing failure - The DCL input did not activate within the expected time interval.	• An incorrect D21 and/or D22 adjustment. Door operator faulted out or failed to provide the limit.
1041	Door watchdog opening failure - The DCL input did not activate within the expected time interval.	• An incorrect D21 and/or D22 adjustment. Door operator faulted out or failed to provide the limit.
1042	Viscosity Shut Down due to over temperature – OLTO input is (or was at some time) active.	Reset faults and cycle inspection switch to return car to service once OLTO state is correct.
1043	Low Fluid Shutdown - The car did not complete a floor-to-floor run within the low fluid timer (Z44) interval.	—
1044	Software error - Both inputs are in the required state to activate and deactivate Fire Service Phase 1 at the same time.	—
1045	Software error - Both inputs are in the required state to activate and deactivate Fire Service Phase 2 at the same time.	—
1046	Failed to add I/O to the hardware assignments list - An invalid I/O name was found.	—
1047	Calls canceled due to service interruption.	—

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Code	Description *(cont.)*	Possible Causes/Solutions *(cont.)*
1049	Open door protection failure - The doors failed to open in the allotted time.	• A defective I/O. • A defective door operation.
1050	Close door protection failure - The doors failed to close in the allotted time.	• A defective I/O. • A defective door operation.
1051	Stuck door opening device error - The SE, EE, DOB, or DHB I/O is stuck in the active state.	• A defective I/O. • A defective door operation.
1052	Stuck DCB error - A DCB I/O is stuck in the active state.	• A defective I/O. • A defective door operation.
1053	The Fire Service Phase 1 secondary switch I/O does not match the adjustment.	• An invalid adjustment F16 for fire service type. • An invalid adjustment F15 for the secondary fire service switch type. • The I/O provided does not match requirements.
1054	Down run time has exceeded 5 minutes - The down run request was longer than the time allowed for a full hoistway run in the down direction.	• A defective valve adjustment. • A defective valve.
1056	Floor tables of the encoder counts are not set up when attempting an auto run. When the elevator is not on inspection operation, and the level reference in non-volatile memory for any floor is invalid.	• A defective hoistway scan. • A defective CPU. • A defective CPU battery. • Loose battery connections. • An improper power unit setup. • Improper selector signals. • Verify the Position and/or Motion adjustments.
1057	The encoder is out of tolerance at the floor level - The car is at floor level, and the encoder position count is different than the floor position count by more than the value in adjustment P20.	• A defective encoder.
1058	Selector position wrong at limit of travel - The car is at the bottom or top of its travel limit and the selector has determined that the closest floor is not the corresponding bottom or top floor.	—
1059	Bad encoder re-calibration - Two consecutive encoder re-calibrations were out of range. The encoder reported a count (while at two consecutive floors) that was different from each floor position count by more than adjustment P20.	• A defective encoder.
1060	The selector setup was not completed - The selector setup either failed or was terminated before completion.	• Other system fault interrupted the setup. • A defective CPU. • A defective selector
1061	Selector setup position count table error - The setup has determined that a value for a floor was invalid, and the setup is invalidated.	• A defective selector. • Wrong number of floors in the job image. • Wrong job image.

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Code	Description *(cont.)*	Possible Causes/Solutions *(cont.)*

1062	1. Encoder interrupt failure - A car passed a slowdown point without receiving confirmation from the encoder.
	2. Improper normal terminal slowdown magnet placement.
		Possible Causes:
		• A defective encoder.
		Possible Solutions:
		• Check the slowdown magnets for gaps.
		• Verify the P17 and/or P18 adjustments.
		• The terminal slowdown (NTST input for top, NTSB input for bottom) is reached too early (before the corresponding selector slowdown is reached). See P17 for top, and P18 for bottom.
		• If the NTSB input deactivates (metered logic) at the top terminal, or if the NTST input deactivates (metered logic) at the bottom terminal,
		  • A 1086 error is generated,
		  • A 1062 error is generated,
		  • The car will run at slow speed to next stop.
		• Check the slowdown magnets for gaps.

1067	Viscosity operation has detected activation of both low temperature and high temperature sensors at the same time.	• One or both sensors is out of adjustment. • One or both sensors is defective. • Input wiring error.
1068	Dual post jack resync fault.	See WJR.
1069	False power failure error - The CPU received a false Non-Maskable Interrupt (NMI), indicating an impending power failure, and the power did not fail.	• Electrical noise affecting the power fail detection signal and/or the power supply (check grounding and noise suppression). • Power supply adjustment. • Defective power supply.
1070	LVU-LVD error - Neither of the LVU or the LVD leveling sensors were active while the car was within the door zone. Minimum requirements: • One sensor active within the door zone. • Both sensors active at the floor level.	• Defective selector sensors.
1073	Car/Gate door open limit error - A fault has been detected due to the simultaneous activation of the car gate contact and the door open limit.	• A defective gate contact and/or door open limit. • Improper wiring. • Defective communication between the CPU Card and the electronic door operator. • Defective CPU Card &/or electronic door operator. • A defective DOL or CDCF input.
1074	Input PRSW Active (Pressure Switch).	—
1075	Car stop switch override error - The car stop switch override circuit (controlled by CSTO output) has been detected faulty by its monitoring CSTOM input, and the elevator shuts down.	• A defective CSTOM input. • A defective CSTO output. • Improper wiring.
1076	Freight door interlock stuck error - The freight door interlock (FDI) has failed to close at the start of a run, or failed to open at the end of a run.	• A defective interlock. • A defective retiring cam. • Improper wiring.
1077	Loss of encoder pulse train error - While the car was in motion, the encoder motion signal pulse train (furnished by either a tape or rotary encoder) was lost, and the elevator is shut down at a floor.	• A defective rotary encoder. • Defective tape motion sensors. • Improper wiring.
1078	Low battery error - The 3-volt battery in the CPU Card is either low or dead: • This battery is required to ensure retention of job configuration and adjustments. • If the job configuration and adjustments are lost, then the job configuration must be uploaded again from IMS. • Elevator adjustments may have to be repeated, including scanning the hoistway to learn the floor positions.	• A dead battery. • The battery is missing, or installed backwards.

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Code	Description *(cont.)*	Possible Causes/Solutions *(cont.)*
1079	Down run attempted but velocity stayed zero - The position system specified determines the car velocity, and a down run is attempted. If the velocity returned by the position system remains zero, assume that the car has stalled.	• A defective position system (encoder/selector). • A car is bound and not able to move. • The position system adjustment does not match the provided hardware.
1080	Bad group job data - The group software cannot run. Stored non-volatile data has invalid parameters in the group portion.	• An invalid configuration or adjustment. • Corrupted memory: load (generic and job image) software. • A bad CPU Card. • This error can also be generated by the following information in the group memory: • The number of floors = 0, or is greater than the maximum number of floors permitted. • The number of cars in the group = 0, or is greater than the maximum number of cars permitted. • The number of I/O = 0, or is greater than the maximum number of I/O permitted. • Rear operation is specified, but there are no rear openings specified.
1081	Bad initialization of non-volatile memory - This fault can occur if a new section of non-volatile memory is allocated by software, but the memory was not available at that time. **Note**: This fault can also occur when updating software or performing an INIT or INIT ALL. The Remote FAST (if open) will display which section of non-volatile memory failed.	• Memory is temporarily unavailable - Reset the CPU. • A software error. • Corrupted memory: load (generic and job image) software. • A bad CPU Card.
1082	Bad save to non-volatile memory - This fault can occur if a save to non-volatile memory is attempted by software but the memory was not available at that time. **Note**: The Remote FAST (if open) will display which section of non-volatile memory failed.	• Memory is temporarily unavailable - Reset the CPU. • A software error. • Corrupted memory: load (generic and job image) software. • A bad CPU Card.
1083	Bad recall of non-volatile memory - This fault can occur if: • A recall from non-volatile memory is attempted by software, but the memory was not available at that time, or • If a memory segment is set to an invalid size, or • If a variable is set out of its valid range. The Remote FAST (if open) will display which section of non-volatile memory failed.	• Memory was temporarily unavailable - Reset the CPU. • A job image error - Check for incorrect TAG sizes through the WRT Command. • A job image error - Check for variables set incorrectly through the GET Command. • Corrupted memory: load (generic and job image) software. • A bad CPU Card.
1085	An SPI error has been detected on an CAN node.	• For car nodes - Use the DCN Command to determine the CN node ID (first failed node displays). • Check all wiring and connections at the failing node. • Invalid configuration - See the DCN Command and verify that the port numbers are correct. • Issue the TECC Command to make sure all of the nodes are configured. • A bad CN expansion or expansion card cable.

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Code	Description *(cont.)*	Possible Causes/Solutions *(cont.)*

1086	Normal terminal slowdown limit failure - This fault is normally caused by a sensor, a CPU input, or magnet failure of NTST, NTSB, TSR1, TSR2.
	If the car is located at a terminal landing:
	• The CPU inputs for that terminal did not drop out as required to back up normal slowdown. The car is shut down, with a service status of SELECTOR.
	• The CPU inputs for the other terminal are not in the proper state:
	  • A 1086 error is logged, but the car is not shutdown.
	  • A 1062 error will be generated (on the very next run away from that terminal) and the car will run at slow speed to the next stop.
	If the car is located at the bottom terminal:
	• Two consecutive failures of NTSB must occur before the car is shut down, and a 1086 fault is generated with each failure.
	If the car is located at the top terminal:
	• A single failure of NTST, TSL1, or TSL2 will cause the car to shut down.
		• An invalid configuration or adjustment of magnets or selector.
		• Corrupted memory: load (generic and job image) software.
		• Bad sensors on TSMC.

1087	Valve Contact Off Error - This fault occurs when the car has no run request, but the MCD input indicates that the run circuit contacts were active.	• A failed output device on the IOF Card. • A MUTS input has excessive voltage. • UTS output on EMS. • A defective MCD input.
1088	Motor contactor Off - This fault occurs when the car does not have a run request, but the MCE input indicates that the motor contactor was still enabled.	• A failed output device on the IOF Card. • A MUTS input has excessive voltage. • UTS output on EMS. • A stuck motor contactor auxiliary contact. • A defective MCE input.
1089	The car gate and door locks made, but the door close limit (DCL) was not activated.	• Faulty gate or locks. • Jumpers on the gate or locks. • A defective DCL or CDCF input. • Improper timing between the DCL6, the Gate Switch, the Interlock, and the DCL.
1094	Hoistway access monitor failure - This fault occurs when INHA and INHAM are in the same state.	—
1095	Dynamic Sensor Failure -The car ran to the top landing and one of the dynamic sensors failed to activate.	—
1100	Door bypass failure - This fault occurs when bypass switches are activated and car does not go on inspection operation.	• A defective I/O (CDBM/HDBM). • A defective IOF (switch or input).
1101	The front gate made, and DCL did not activate.	• A defective I/O (CDCF, DCL, or CDCFM).
1102	The rear gate made, and DCLR did not activate.	• A defective I/O (CDCR, DCLR, or CDCRM.)
1103	Door communication loss was detected.	—
1104	Gate and lock error - The gate and lock circuit opened during a run.	• The car doors are clipping interlocks. • A defective I/O (IF/IR/IB/IT/CF/CR/CT/CB). • A defective gate contact. • Defective wiring.
1105	Car door lock error - The car door did not close when DCL was made.	• A defective I/O (CDCF/CDCR or DCL). • A defective car gate contact. • Defective wiring.
1107	Excessive leveling time that exceeds the hysteresis set by adjustment P22	—
1108	Start retry shutdown - The controller will shutdown after 6 consecutive attempts to start a run.	—

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Code	Description *(cont.)*	Possible Causes/Solutions *(cont.)*
1110	A17/B44 shutdown error - Inspection to reset.	• An input and its respective monitor indicates a logically impossible condition or failure; Top and bottom final limits active at the same time.
1111	Indicates that the seismic sensor has been activated.	—
1113	Car service protection is activated.	—
1114	Selector out of service fault - Door zone.	Possible Causes: • Leveling speed too fast. • Defective magnet. • Defective selector. Possible Solution: • RFL and cycle the inspection switch to reset.
1115	The car failed to run because the door held.	—
1116	Ambient temperature is out of range (-10°C. to 70°C.)	• Controller too hot or cold as sensed by IOF Card's temperature sensor.
1120	The left dynamic jack sensor did not activate when it should have.	• Improper left dynamic sensor installation. • A defective left dynamic sensor.
1121	The right dynamic jack sensor did not activate when it should have.	• Improper left dynamic sensor installation. • A defective left dynamic sensor.
1122	The car was already in slowdown when the dynamic jack resynch sensors were activated. Note: Dynamic sensors should activate 12 inches before the slowdown point.·	• Improper left dynamic sensor installation. • A defective left dynamic sensor. • The slowdown distance is too long.
1123	Up Run stalled.	• Z44 value exceeded.
1124	Car top inspection Node B CAN communication is offline.	—
1129	SEL Node A/B data mismatch.	—
1130	Car top inspection Nodes A/B Data mismatch.	• Noise. • DPIA Card.
1133	SEL Node A reported a duplicate node.	—
1134	SEL Node B reported a duplicate node.	—
1135	Car top inspection Node A reported a duplicate node.	• DPIA not configured.
1136	Car top inspection Node B reported a duplicate node.	• DPIA not configured.
1141	SEL Node A data error.	—
1142	SEL Node B data error.	—
1143	Car top inspection Node A data error.	• DPIA Card. • Car CAN issue. • Noise.
1144	Car top inspection Node B data error.	• DPIA Card. • Car CAN issue. • Noise.
1150	Up Run stalled due to a command to Run Up, but no encoder pulses were detected with Z44.	• Check the selector. • Z44 too short. • Car not moving.
1151	SEL Node A SPI Loop Error.	—
1152	SEL Node A CAN communication is offline.	—
1153	SEL Node B CAN communication is offline.	—
1154	Car Top Inspection Node A CAN communication is offline.	• DPIA Card. • Car CAN issue. • Noise.
1155	DZ Node A CAN communication is offline.	—
1156	DZ Node B CAN communication is offline.	—
1157	DZ Node A/B data mismatch.	—
1158	DZ Node A reported a duplicate node.	—
1159	DZ Node B reported a duplicate node.	—
1160	DZ Node A data error.	—

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Code	Description *(cont.)*	Possible Causes/Solutions *(cont.)*
1161	DZ Node B data error.	—
1166	Low Pressure Active On Inspection - INHIBIT DOWN RUN	—
1167	PU #3 - Electronic MCFC Fault	—
1169	Auxiliary Power Unit Relay Monitor Fault.	—
1170	Low Pressure Active On Inspection - INHIBIT DOWN RUN	—
1501	MCD failed to open - A run sequence was started and was waiting for MCD input to go active. The MCD input did not go active at the start of a run.	—
1502	MCE dropped during run - MCE went active at the start of a run, but during the run, a loss of MCE was detected.	—
1520	The CANBus channel is turned Off.	—
1521	CAN Channel 1 did not communicate.	—
1522	CAN Channel 2 did not communicate.	—
1523	CAN Channel 3 did not communicate.	—
1524	Invalid CAN handle.	—
1526	CAN Channel 1 did not receive a message for 60 sec.	—
1527	CAN Channel 2 did not receive a message for 60 sec.	—
1528	CAN Channel 3 did not receive a message for 60 sec.	—
1529	The controller has not received CAN data from the drive in 0.4 seconds. The safety string opens, stopping all car motion.	Software error.
1530	TSR overspeed detected - The monitoring input for the Fast Valve Solenoid (UFSM) has been seen as active when the selector/car is in a terminal floor zone and on the TSR tape magnet. The TSRCPU output is turned off, stopping all car motion.	• Use the TFR Command to reset. • Cycle operation to inspection and back to automatic. This fault indicates a timing issue with hardware on the IOF Card. Check all connections and verify no added relays to solenoid outputs. Slowdown magnet length wrong, valve misadjusted (not enough slowdown), P17 value too low. Should this continue to happen, replace the IOF Card.
1531	Valve input monitor failed - Valve monitoring inputs UFSM, USSM, DFSM, or DSSM have been detected in the wrong state (should always match their output counterparts UFS, USS, DFS, or DSS). The TSRCPU output is turned off, stopping all car motion.	• Use the TFR Command to reset. • Cycle operation to inspection and back to automatic. This fault indicates a timing issue with hardware on the IOF Card. Check all connections and verify no added relays to solenoid outputs. Slowdown magnet length wrong, valve misadjusted (not enough slowdown), P17 value too low. Should this continue to happen, replace the IOF Card.
1532	TSR input monitor failed - The TSRM monitoring input does not match the TSR output. The safety string is opened, stopping all car motion.	• Use the TFR Command to reset. • Cycle operation to inspection and back to automatic. This fault indicates a timing issue with hardware on the IOF Card. Check all connections and verify no added relays to solenoid outputs. Should this continue to happen, replace the IOF Card.
1533	FPGA detected door open outside of door zone - The safety string opens, stopping all car motion.	• Use the TFR Command to reset. • Cycle operation to inspection and back to automatic. This fault indicates a timing issue with hardware on the IOF Card. Check all connections and verify no added relays to solenoid outputs. Should this continue to happen, replace the IOF Card.
1534	FPGA detected an active fast valve solenoid (UFS or DFS outputs energized) when on hoistway access, inspection, or leveling -The safety string opens, stopping all car motion.	• Use the CLR FLT button to reset. • Cycle operation to inspection and back to automatic. This fault indicates a timing issue with hardware on the IOF Card. Check all connections and verify no added relays to solenoid outputs. Should this continue to happen, replace the IOF Card.

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Code	Description *(cont.)*	Possible Causes/Solutions *(cont.)*
1535	FPGA detected invalid drive state - While on hoistway access or inspection with no inspection Up/Down button active, or while on door bypass with no controller/machine room inspection Up/Down button active, the valve has been detected as energized - The safety string opens, stopping all car motion.	• Use the CLR FLT button to reset. • Cycle operation to inspection and back to automatic. This fault indicates a timing issue with hardware on the IOF Card. Check all connections and verify no added relays to solenoid outputs. Should this continue to happen, replace the IOF Card.
1536	FPGA detected invalid door bypass - The car door bypass or hoistway door bypass monitor inputs have been detected as active when door bypass switches are off, or internal hoistway access bypass terms are active when the hoistway access switches are off - The safety string opens, stopping all car motion.	• Use the TFR Command to reset. • Cycle operation to inspection and back to automatic. This fault indicates a timing issue with hardware on the IOF Card. Check all connections and verify no added relays to solenoid outputs. Should this continue to happen, replace the IOF Card.
1537	FPGA detected invalid door zone bypass - Internal door zone bypass terms have been detected as active when the car is not in the door zone - The safety string opens, stopping all car motion.	• Use the TFR Command to reset. • Cycle operation to inspection and back to automatic. This fault indicates a timing issue with hardware on the IOF Card. Check all connections and verify no added relays to solenoid outputs. Should this continue to happen, replace the IOF Card.
1538	FPGA detected programming jumpers active - When IOF Card jumpers JP2 or JP3 are placed in the 1-2 position to allow CPU programming of the FPGA's, this fault registers and the safety string opens.	• Remove the jumpers to restore operation. • Cycle operation to inspection and back to automatic. This fault indicates a timing issue with hardware on the IOF Card. Check all connections and verify no added relays to solenoid outputs. Should this continue to happen, replace the IOF Card.
1539	Safety processor system detected ambient temperature out of range - The ambient temperature sensor on the IOx has reported the controller temperature to be outside the acceptable range for continued operation (5°F to 167°F, or -15 °C to 75 °C). The safety string opens, stopping all car motion.	• Resets when the detected temperature returns to the acceptable range.
1540	FPGA has opened the safety string via the SAFCPU output.	• Check other existing associated fault codes.
1541	Motor starter monitor fault - The IO for starter control has been detected in an invalid state. Either MCC1/MCC1M or MCC2/MCC2M are in unequal states.	• Use the TFR Command to reset. • Cycle operation to inspection and back to automatic.
1685	Invalid CN version.	• Update CN software or replace the CN Card.
1687	CN No Poll Response - The inputs are cleared.	Possible Cause: • CN/HN has a safety critical I/O, and it did not respond to the controller's request. All I/Os on that node are cleared. Possible Solution: • Check power and communication to that node.
1689	Maximum Safety Nodes Exceeded - The car was shutdown.	Possible Cause: • The job configuration has too many CN ports with safety I/Os on it.
1690	Invalid CN Configuration - The job configuration has an invalid CN configuration.	—
1691	Invalid message ID on Channel 1.	—
1692	Invalid message ID on Channel 2.	—
1693	Invalid message ID on Channel 3.	—
1705	End of run test failed circuits.	—
1707	Rear selector vane set but I/O not present - P12>0, but is missing the rear selector input.	—
1726	Thread non-responsive.	• Reload generic and job image. • Replace CPU.
1850	Power disturbance detected on P24 volt power supply.	• Check power supply for proper current rating. • Check grounds, etc.

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

Code	Description *(cont.)*	Possible Causes/Solutions *(cont.)*
1851	Hardware watchdog has occurred.	Possible Cause: • Noise issue. Possible Solution: • Check grounding to the IOF Card.
1852	Power loss interrupt failed (should never happen).	Possible Cause: • A hardware or software problem.
1853	Invalid MAC Address - The Ethernet port is disabled.	Possible Cause: • Manufacturing did not properly set the MAC address. Possible Solution: • Replace the CPUC Card.
1854	LU/LD stuck error.	• Magnet placement. • Noise on Car CAN. • Car CAN loading. • Failed TSM Card.
1857	Software error - The system attempted to validate an I/O prior to the I/O database being initialized (should never happen).	—
1858	Gate contact did not close.	—
1859	Discrete SPI HW failure - A CPU/IOF hardware failure.	• Check F1 on the IOF Card. • Reload generic and job software. • Replace the IOF Card.
1860	Inspection node offline.	• DPIA communication issue.
1861	The power-on self test failed.	—
1862	An invalid generic software version - The software version does not match the job number. The car is shutdown until the valid generic software is installed.	—
1865	A job file image is missing.	• Reload generic and job software.
1866	Flash job file image is corrupted.	• Reload generic and job software.
1867	The battery-backed RAM job file is corrupt.	• Reload generic and job software.
1868	DZ1 is stuck active during a run.	• Check the selector.
1869	DZ2 is stuck active during a run.	• Check the selector.
1870	Stuck car call detected.	—
1878	Stuck hall call button detected.	—
1920	Safety processor configuration invalid - At power-up, the CPU Card detects an invalid IOF Card configuration.	• Use the SPC Command.
1921	Safety processor not online - At power-up, CPU did not detect IOF Card safety processor communicating over car CANbus.	• Communication disruption of the Car CAN Channel. • A defective CPU. • A defective IOF Card.
1922	NTSD processor not online.	• Communication disruption of the Car CAN Channel. • A defective IOF Card.
1925	SP I/O mismatch with CPU.	—
1926	NP I/O mismatch with CPU.	—
1955	LULDM has detected an illegal state based on LUO and LDO outputs.	Possible Causes: • LD Relays are Bad. • Wiring Issue: LUO, LDO, or LULDM I/O Circuits. Possible Solutions: • Reset through Inspection Operation.
3001	A call was lost because a car went out of service.	—
3003	The emergency phone detected failure of the phone line.	—

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SP Fault Codes - Safety Processor

Code	Description	Possible Solutions
2701	Terminal speed reduction device activated – The SP detected Up Fast active while the TSR1 or TSR2 magnets were active.	• Check the motor and valves • Check the TSR1 and TSR2 magnets
2702	Excessive HWAC/Inspection speed detected – The SP detected Up Fast or Down Fast active while on inspection operation.The safety processor opens the safety string via the SAFSP output.	• Check the motor and valves. • Invalid encoder scaling. • Invalid contactor monitor inputs. • This condition is latched through a power cycle, and is only reset through the SFR Command.
2703	Revert from car top inspection to automatic detected – The SP detected Up or Down solenoids active while on car top inspection without car top inspection run inputs.	• Failed outputs on the IOF Card. • Check solenoid output wiring and voltages. • Voltage present on outputs with no demand means failed IOF Card output device(s).
2704	Revert from bypass operation to automatic detected - The SP detected Up or Down solenoids active while on bypass operation.	
2705	Revert from hoistway access operation to automatic detected - The SP detected Up or Down solenoids active while on hoistway access operation without hoistway access run inputs.	
2706	Revert from machine room inspection to automatic detected - The SP detected Up or Down solenoids active while on machine room inspection without machine room inspection run inputs.	
2707	During car top inspection an invalid I/O was detected.	• Check the car top inspection inputs. • Check the car CAN channel. • Check the DPIA.
2708	During bypass operation an invalid I/O was detected.	• Check the car door bypass switch. • Check the hoistway door bypass switch.
2709	During hoistway access operation an invalid I/O was detected.	• Check the hoistway access inputs. • Check the car CAN channel. • Check the DPIA.
2710	During machine room inspection, an invalid I/O was detected.	• Check the machine room inspection switch. • Check the machine room inspection buttons.
2711	Bottom limit override crosscheck failure - The SP detected that BLO and BLOM are in the same state.	• Check BLO. • Check BLOM.
2712	The test outputs were not commanded within three (3) automatic runs.	• Reload the generic and job software. • Replace the CPU Card.
2713	Safety string output test failure.	• Check Real Time Motion > Show Faults • Check all wiring/connections to the IOF Card. • Replace the IOF Card.
2714	CHKHA crosscheck failure.	• IOF Card device failure - Try RFL, TFR, and cycle INSP to reset. If it returns or is chronic, replace the IOF Card.
2715	TSMC data message was not received.	• Check the car CAN channel. • Check TSMC.
2716	Car top data message was not received.	• Check the car CAN channel. • Check the DPIA.
2717	Top hoistway access data message was not received.	• Check the hall CAN channel • Check the HN Board
2718	Bottom hoistway access data message was not received.	
2719	A corrupted TSMC Node A CAN message was received.	• Check Car CAN loading, connections, and cable routing. • Replace the TSM Card.
2720	A corrupted TSMC Node B CAN message was received.	• Check Car CAN loading, connections, and cable routing. • Replace the TSM Card.
2721	A corrupted car top CAN message was received.	• Check Car CAN loading, connections, and cable routing. • Replace the DPIA Card.
2722	A corrupted top hoistway access CAN message was received.	—

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Code	Description *(cont.)*	Possible Solutions
2723	A corrupted bottom hoistway access CAN message was received.	—
2724	A corrupted main CPU CAN message was received.	• Check Car CAN loading, connections and cable routing. • Indicates noise on the Car CAN channel or failing communication chip on the CPU.
2725	A duplicate TSMC Node was detected.	• Verify that there is only one TSMC connected.
2726	A duplicate car top node was detected.	• Verify that there is only one DPIA connected. • Perform SPC, then TECC the nodes.
2729	A car CAN channel bus Off failure.	• Check the car CAN termination.
2730	A hall CAN channel bus Off failure.	• Check the hall CAN termination.
2731	An input failure was detected.	—
2732	A programming jumper was enabled.	—
2733	A/C peak reference timeout – The SP has lost A/C power, so the A/C inputs cannot be sampled.	• Failed device on the IOF Card.
2734	A relevel with FAST solenoid detected.	—
2735	Car top inspection node crosscheck error.	• Check DPIA connections.
2738	TSRCPM lost during output test.	• Failing input/output on the IOF Card - Try RFL, TFR, and cycle INSP to reset. • Verify that the valve solenoid wiring matches the wiring diagrams.
2739	TSMC message was not received at power ON.	• Check power to the selector. Check Car CAN channel. replace TSMC.
2740	Car top inspection message was not received at power ON.	• Check Car CAN channel and DPIA Card.
2741	A corrupted TSMC Node A terminal message.	• Check Car CAN loading, connections, and cable routing. • Indicates noise on the Car CAN channel or failing communication chip on the TSMC.
2742	A corrupted TSMC Node A version message.	• Check Car CAN loading, connections, and cable routing. • Indicates noise on the Car CAN channel or failing communication chip on the TSMC.
2743	A corrupted car top inspection CAN message.	• Check Car CAN channel and DPIA Card.
2744	A corrupted top HWAC CAN message version.	—
2745	A corrupted bottom HWAC CAN message version.	—
2746	TSMC Node A / Node B data crosscheck error.	• Check Car CAN loading, connections, and cable routing. • Indicates noise on the Car CAN channel or failing communication chip on the TSMC.
2747	Selector B CAN communication time out detected.	• Check Car CAN loading, connections, and cable routing. • Indicates noise on the Car CAN channel or failing communication chip on the TSMC.
2748	Car Top B CAN communication time out detected.	• Check Car CAN channel and DPIA Card.
2756	Car top B message timeout.	• Check Car CAN loading, connections, and cable routing. • Indicates noise on the Car CAN channel or failing communication chip on the TSMC.
2751	Duplicate Selector B node detected.	• Check Car CAN loading, connections, and cable routing. • Indicates noise on the Car CAN channel or failing communication chip on the TSMC.
2752	Duplicate car top B node detected.	• Check Car CAN loading, connections, and cable routing. • Indicates noise on the Car CAN channel or failing communication chip on the TSMC.
2756	Terminal Speed Reduction activated. Safety Processor detected overspeed into top terminal landing.	• Check NTS magnets (polarity and position). • Check UFS output and wiring.

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

NP Fault Codes - NTSD Processor

Code	Description	Possible Solutions
2801	The top terminal slowdown was activated – NP detected NTST active while running Up Fast.	• Check the NTST magnet; P17 adjustment too low. • Check the motor and valves.
2802	The bottom terminal slowdown was activated – The NP detected NTST active while running Up Fast.	• Check the NTSB magnet; P18 adjustment too low. • Check the motor and valves.
2803	The top terminal stopping was activated – The NP detected DL active and NTST active while running Up.	• Check the NTST magnet; P17 adjustment too low. • Check the motor and valves. • Check the DL magnet.
2804	The bottom terminal stopping was activated – The NP detected DL active and NTST active while running Up.	• Check the NTSB magnet; P18 adjustment too low. • Check the motor and valves. • Check the DL magnet.
2805	The test outputs were not commanded within three automatic runs.	• Reload the generic and job software. • Replace the CPU Card.
2806	A FAST solenoid output test failure.	• RFL, RRF. • Use a meter to check the UFSM input during an Auto Up run. If no VAC, then use job diagrams to troubleshoot the output voltage supply.
2807	A safety string output test failure.	• Issue an FLT command. • Check all wiring/connections to the IOF Card. • Replace the IOF Card.
2808	TSMC data message Node A was not received.	• Check the car CAN channel. • Check the TSMC.
2809	A corrupted TSMC Node A CAN message was received.	• Check the Car CAN loading, the connections, and the cable routing. • Replace the TSM Card.
2810	A corrupted TSMC Node B CAN message was received.	• Check the Car CAN loading, the connections, and the cable routing. • Replace the TSM Card.
2811	A corrupted main CPU CAN message was received	• Noise on Car CAN channel or failing communication chip on CPU. • Check the Car CAN loading, the connections, and the cable routing.
2812	A duplicate TSMC Node A was detected.	—
2813	A car CAN channel bus Off failure.	• Check Car CAN channel loading, cable routing, shielding, & connections.
2814	A programming jumper was enabled.	—
2815	A/C peak reference timeout - The NP lost A/C power, so the A/C inputs cannot be sampled.	• Failed device on the IOF Card.
2816	A duplicate TSMC Node B was detected.	—
2817	A TSMC data message Node B was not received.	• Check the car CAN channel. • Check the TSMC.
2818	A TSMC Node A and Node B data mismatched.	—
2819	NP failed to configure the IOF FPGA.	• Perform SPC again. If a persistent fault, replace the IOF Card.
2820	Bottom limit override and running fast.	• Check DFS output and solenoid wiring.
2821	TSRCPM went false during fast valve test.	• Failing input/output on IOF Card - Try RFL, TFR, & cycle INSP to reset. • Verify that the valve solenoid wiring matches the wiring diagrams.
2822	TSRCPM went false during safety string output test.	• Failing input/output on IOF Card - Try RFL, TFR, & cycle INSP to reset. • Verify that the valve solenoid wiring matches the wiring diagrams.
2823	Selector message timed out at power ON.	• Check power to the selector. • Check the Car CAN channel. • Replace the TSMC.
2824	Selector Node A corrupted version message.	• Noise on Car CAN channel or failing communication chip on TSMC. • Check Car CAN loading, connections, and cable routing.
2825	Selector Node B corrupted version message.	• Noise on Car CAN channel or failing communication chip on CPU. • Check Car CAN loading, connections, and cable routing.

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

WPT Diagnostics

Fault Codes	WPT Tool Label	Description
3402/3702	PS	Parameter set error
3403/3703	EE	EEPROM writing or reading fault
3404/3704	OC	Overcurrent
3405/3705	RS	Faulty reference switch
3406/3706	IE	Internal software fault
3407/3707	AP	Fault by position counter, door width > 3.5m
3408/3708	TS	Faulty temperature sensor
3409/3709	NE	Encoder not connected
3410/3710	CF	Closing force potentiometer defect
3411/3711	ME	Fault by motor or encoder
3412/3712	SS	Standstill fault, door is blocked
3413/3713	TH	Temperature of the electronic or motor too high
3414/3714	FE	Set during manual change of coupler movement parameter
3415/3715	ES	Fault by encoder, signals out of limits
3416/3716	PI	Position input (ABSPOS) Invalid
3418/3718	BE	Electrical error during rotor angle detection, no current is flowing (motor not connected)
3419/3719	BM	Mechanical error during rotor angle detection; door stalled wrong rotation direction; press **LEARN**
3450/3750	--	Software timing error --- only IE is set
3451/3751	--	Wrong interrupt warning --- only IE is set
3452/3752	--	Stack size error --- only new software start-up
3453/3753	--	SCI send error --- only ICE
3454/3754	--	Software-watchdog failed --- only new software start-up
3455/3755	--	Flash cannot be read
3456/3756	--	Flash checksum wrong
3457/3757	--	Illegal state-machine state
3458/3758	--	EEPROM protection error
3459/3759	--	RAM protection error
3464/3764	--	Learn bits protection error
3465/3765	--	mfu.flag.dc_mode bit protection error
3466/3766	--	Learn bits protection error
3480/3780	--	Unknown reset source detected
3481/3781	--	Illegal address reset detected
3482/3782	--	Watchdog reset detected
3483/3783	--	Closing over-speed detected
3490/3790	--	Current offset measurement failed

This manual shows only the parameters that have an operational relevance to the ICON32. The UIT may have additional parameters available, which should not effect the controller operation.

TROUBLESHOOTING SECTION

TROUBLESHOOTING SECTION

Contents

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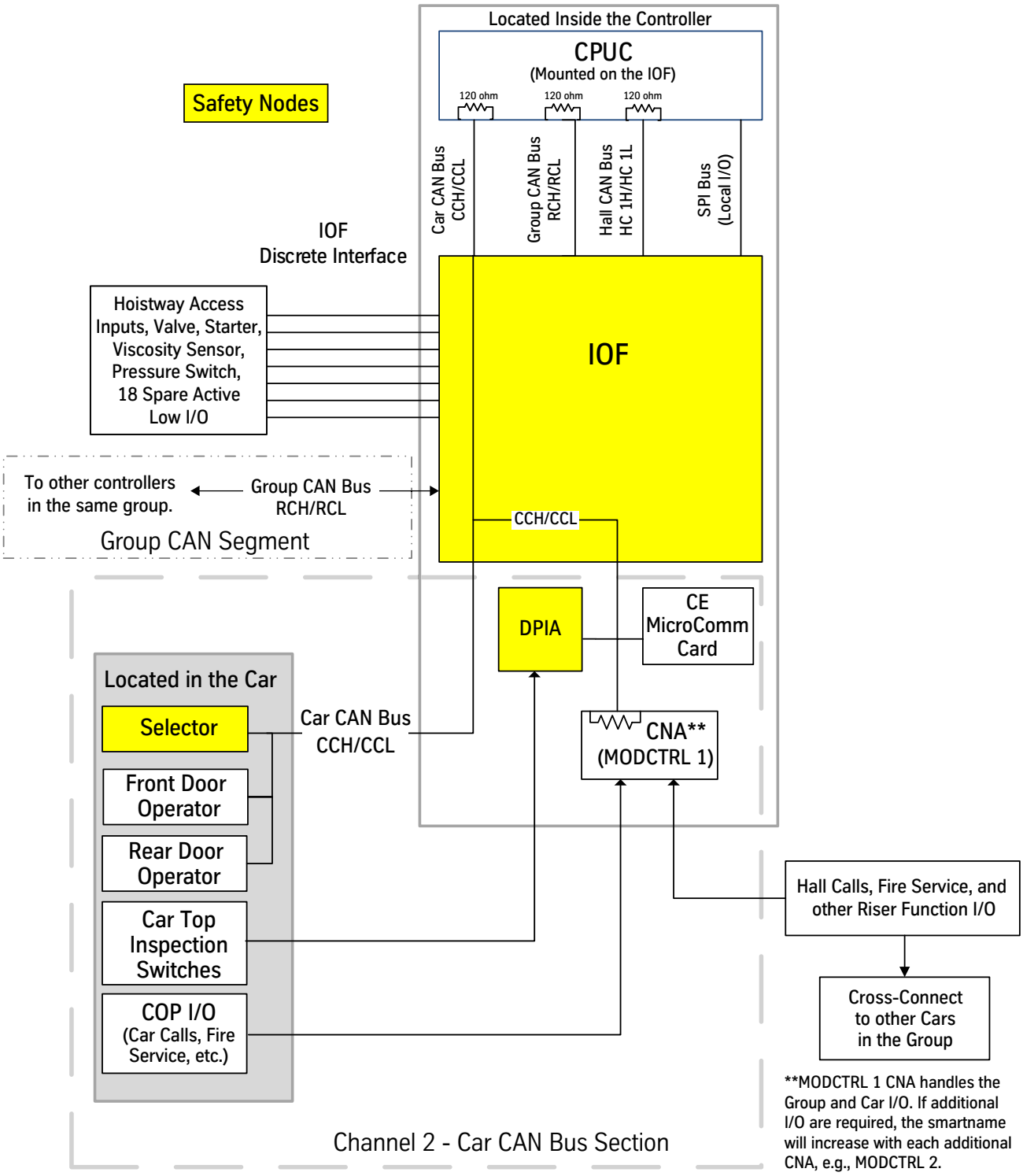
Controller CAN System Overview



Configure the CAN Nodes

CAN Node Address Assignment

1. Have some paper and pen/pencil ready to record node information for future use.
2. Access the UIT.
3. Navigate to **BLOCK SELECT ADJUSTMENTS,** and press **ENTER**.

4. Navigate to **ADJUST MENU COMMANDS START UP,** and press **ENTER**.

5. After **DCN** displays, press **ENTER**.

6. **CN Node = 0** displays. Press **UP** or **DOWN** to select the proper CAN Node ID, and press **ENTER**.

7. When **Ping a Port?** displays, press **DOWN**.

CAN Node Address Assignment
(continued)

The CN Node ID (selected from step 6) displays, followed by its SmartName. The DCN information will begin to scroll from left to right on both lines at different rates as follows. Press **UP** or **DOWN** at any point to pause the scrolling.

Top Line Display	
CN:	The node ID
CNAMAIN1	SmartName
Online:	Online status: 0 = Offline, 1 = Online
Pcks:	# of received data packets
CH:	CAN channel from which the node is assigned to communicate: 2 = Car, 3 = Hall
V:	Software version
uP18Fxxxx	microprocessor version for that node
SP:	# of shared ports
TP:	# of total ports assigned to the node
Bottom Line Display	
Port assignments for ports 0 (zero) through 15 = the numbers represent the port number of the I/O map the port is to use, and all unused ports for a node receive a port assignment of 255.	
CNA Cards always have 12 total ports assigned to them.	

8. Record the CN, the SmartName, and the CH information.

NOTE ICON32 Controllers always have MODCTRL1 on CH:2 as node 0 (zero). Additional nodes are optional per job requirements.

9. Press **ESC**.

10. Repeat step 6 through step 9 for each node 0-11.

11. Verify the addressing jumpers for any CAN Node Card used in the system. See Table 1 on page 4-6.

NOTE A CAN Node may be CN, CNA, or any future CAN Node Card.The jumper assignments are the same.

CAN Node Address Assignment
(continued)

CN Card Node Addressing				
	JP7	JP6	JP5	JP4
CN Card 0	Off	Off	Off	Off
CN Card 1	Off	Off	Off	On
CN Card 2	Off	Off	On	Off
CN Card 3	Off	Off	On	On
CN Card 4	Off	On	Off	Off
CN Card 5	Off	On	Off	On
CN Card 6	Off	On	On	Off
CN Card 7	Off	On	On	On
CN Card 8	On	Off	Off	Off
CN Card 9	On	Off	Off	On
CN Card 10	On	Off	On	Off
CN Card 11	On	Off	On	On

Table 1 - CN Card Node Addressing

12. Verify that JP14 is ON pins 1-2.
13. Verify that JP8 is OFF.
14. Confirm that any CAN Node designated "CH:2" is wired to CCH/CCL. See job prints.
15. Confirm that any CAN Node designated "CH:3" is wired to HC1H/HC1L. See job prints.
16. Remove power from the controller.
17. Check resistance between CCH and CCL on the IOF (60 ohms +/-3 ohms is typical).
    - If the resistance is correct, continue this procedure.
    - If the resistance is not correct, go to CAN Channel Resistive Loading Verification on page 4-7.
18. If any node has been designated "CH:3," remove power from all controllers currently crossed connected within the group.
19. Check resistance between HC1H and HC1L on the IOF (60 ohms +/-3 ohms is typical).
    - If the resistance is correct, continue this procedure.
    - If the resistance is not correct, go to go to CAN Channel Resistive Loading Verification on page 4-7.
20. Restore power to any controllers previously de-energized.
21. Issue a TECC Command.
    Block Select Adjustments > Commands Startup > TECC.
22. Issue a DCN Command.
    Block Select Adjustments > Commands Startup > DCN.
23. Verify that all nodes with SmartName previously recorded from step 8 on page 4-5 are reported as being ONLINE:1.

CAN Channel Resistive Loading Verification

NOTE After correcting CAN loading, issue a TECC Command to ensure the cards are properly configured.

Car CAN Channel 2

- The CAN Channel Troubleshooting Guide is located on page 4-10.

60 ohms is the optimal loading for CAN communications.

1. Position the car so that there is access to the operating panels, and verify that the controller is de-energized.
2. Turn OFF, Lockout, and Tagout the mainline disconnect.
3. In the COP, verify that a 121 ohm axial leaded resistor is installed across the CCH and CCL rail terminals.
4. In the controller, verify that the CPUC Card jumpers CCC and CCT are ON. See Figure 1.
5. In the controller, verify that R120 on the MODCTRL1 CNA Card is not installed. The CNA Card is located on the center divider panel.
6. For cars with more than one CNA assigned to the Car CAN Channel:
   a. Verify that the nodes are connected in parallel (daisy-chained).
   b. Verify that none of the CNA Cards have R120 populated.

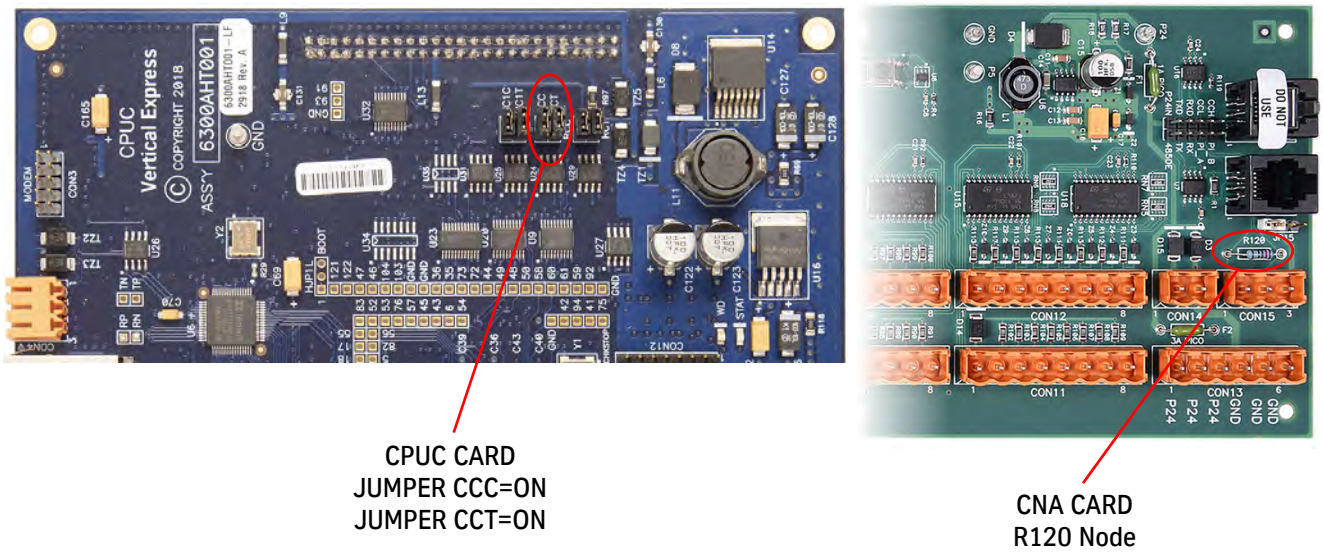


Figure 1 - CPUC and CNA Cards

Car CAN Channel 2
(continued)

7. On the freight door interface box (or other interface box types):
   a. Remove R20 and R21 from the CN Card.
   b. Remove R120 from the CNA Card.

NOTE Not all freight door interface boxes use CAN node direct interfacing, some use relays controlled from I/O's located in other components of the control system.

8. With all nodes connected (and power off), measure resistance from any node in the system between CCH and CCL to confirm the resistive load is 60 ohms +/- 3 ohms.

Hall CAN Channel 3

This section only applies to engineered (custom) jobs where CAN nodes are assigned to the hall channel (CH:3).

Perform this procedure if a Hall CAN channel is used each time a new controller is started up, including grouping the new controller to an already running controller.

1. Turn OFF, Lockout, and Tagout the mainline disconnect for all controllers in the group.
2. Verify the following configurations. See Figure 2 on page 4-9.
   a. CPUC jumpers are ON for the first and last controller, based on the physical order of connections in the machine room.
      - HC1C = ON.
      - HC1T = ON.
   b. CN Card.
      - R20 and R21 installed.
      - JP11 = 1-2.
      - JP12 = 1-2.
   c. CNA Card.
      - R120 installed.

NOTE HC1H/HC1L cross-connects on CON40 of the IOF Card should be installed and cross-wired to properly verify loading for the whole group.

3. Measure the following resistances to confirm the resistive load is 60 ohms +/- 3 ohms.
   a. The IOF Card between HC1H and HC1L.
   b. The lobby panel interface box (or other interface box node) between HC1H and HC1L.

Hall CAN Channel 3
(continued)

4. Issue a TECC Command.
   Block Select Adjustments > Commands Startup > TECC.
5. Issue a DCN Command.
   Block Select Adjustments > Commands Startup > DCN.
6. Verify that all previously recorded nodes with SmartNames are reported as **ONLINE:1**.

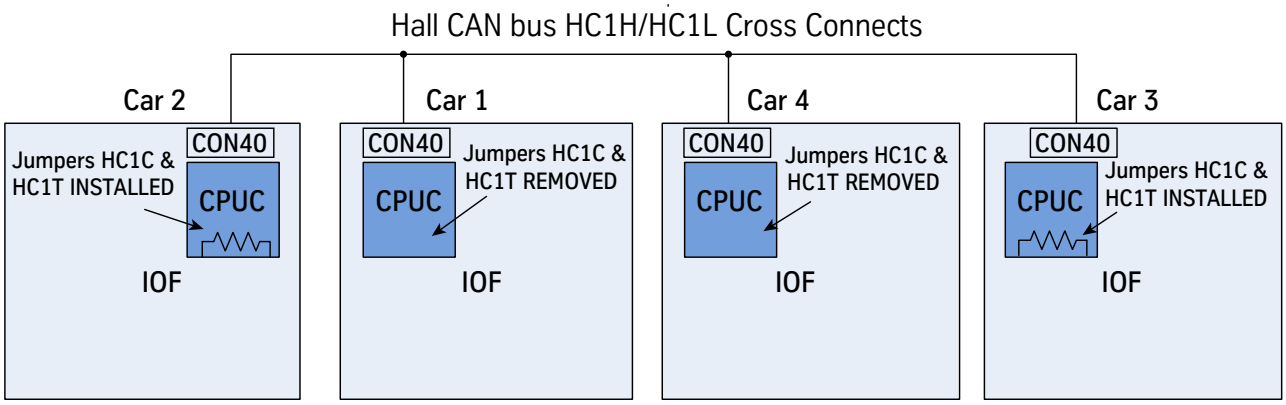


Figure 2 - Hall CAN Termination

Group CAN Channel Termination

Connect either Ethernet or RCH/RCL for group communications, but not both.

Recommended Installation as a backup for Ethernet group communications:

1. Pull and wire the CAN communication.
2. Verify the group communication function.
3. Leave the RCH/RCL wires disconnected; if left unplugged, then CON40 with other cross-connects would be unplugged from the controller until needed.

Group CAN Channel (RCH/RCL)

1. Cross-connect RCH/RCL between all cars in group. See Figure 3 on page 4-10.
2. Enable the terminating resistor on the CPUC for the controllers on each end of the cross-connect.
   » Install RCT and RCC.
3. Disable the terminating resistor on all other CPUC Cards of the remaining (intermediate) controllers in the group.
   » Remove RCT and RCC.

Group CAN Channel Termination
(continued)

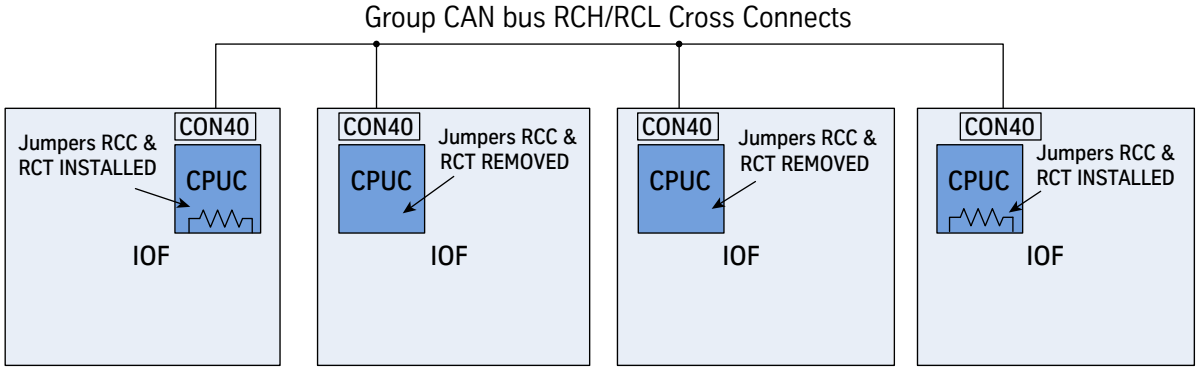


Figure 3 - Controller Group CAN Cross-Connects

CAN Channel Troubleshooting Guide

Car CAN Link (CCH/CCL)

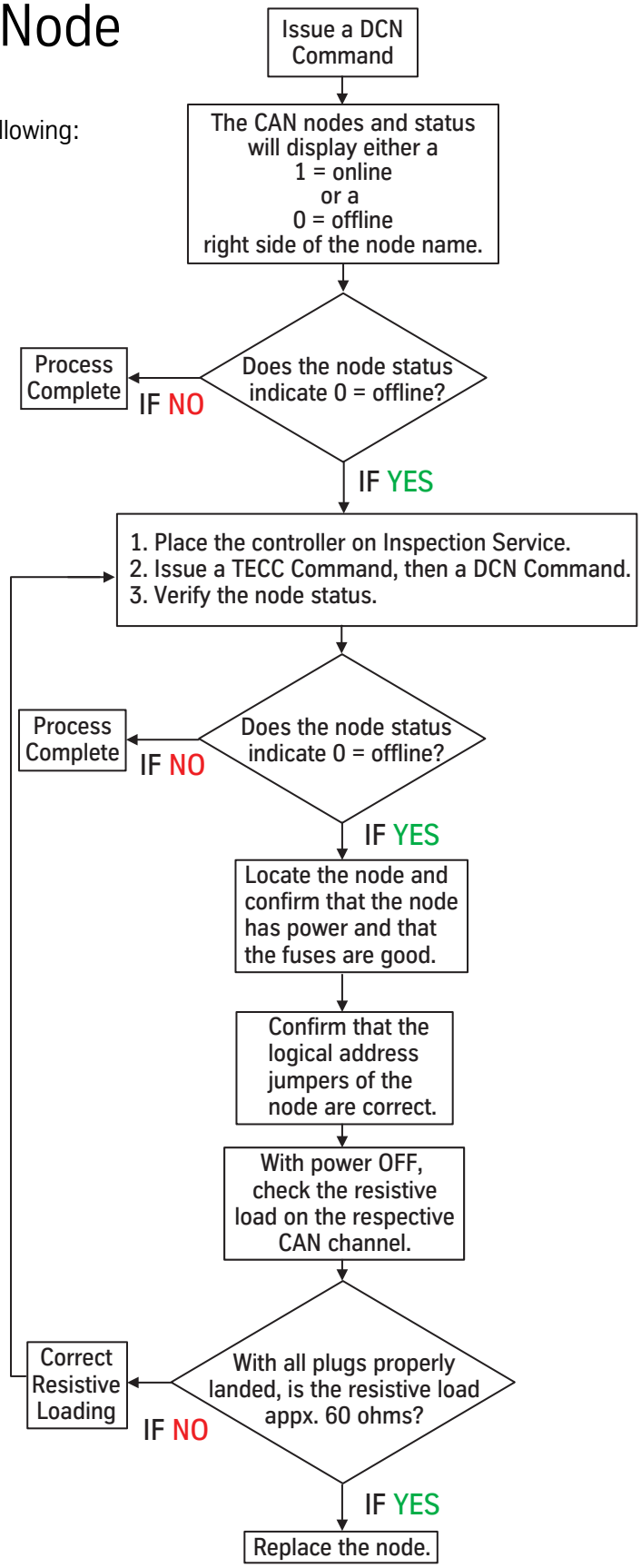
CCH to CCL	**Indication**	**Problem**	**Verification**
	Resistance reads ~60 ohms.	N/A	N/A
	Resistance does not read ~60 ohms.	Termination jumpers and resistors are set incorrectly.	Verify the correct jumper and resistor settings on CPUA and all termination points on the CC link.
	Resistance is not a divisor of 120 ohms.	Wires crossed, wrong value for termination resistors, or shorts to other circuits.	Verify and correct.
CCH/CCL to SHCC	**Indication**	**Problem**	**Verification**
	Resistance reads Open Circuit.	N/A	N/A
	Resistance = measurement between CCH and CCL.	A short between SHCC and CCH(L).	Verify and correct.
	Resistance is not the value measured between CCH and CCL.	Shorts to other circuits.	Verify and correct.

Hall CAN Link (HC1H/HC1L), only required when there is a node present on CH3

HC1H to HC1L	**Indication**	**Problem**	**Verification**
	Resistance reads ~60 ohms.	N/A	N/A
	Resistance does not read ~60 ohms.	Termination jumpers and resistors are set incorrectly.	Verify the correct jumper and resistor settings on CPUA and all termination points on the HC1 Link.
	Resistance is not a divisor of 120 ohms.	Wires crossed, wrong value for termination resistors, or shorts to other circuits.	Verify and correct.
HC1H or HC1L to SHHC1	**Indication**	**Problem**	**Verification**
	Resistance reads Open Circuit.	N/A	N/A
	Resistance = measurement between HC1H and HC1L.	A short between SHHC1 and HC1H or HC1L.	Verify and correct.
	Resistance is not the value measured between HC1H and HC1L.	Shorts to other circuits.	Verify and correct.

Correct an Offline CAN Node

1. Before performing this procedure, verify the following:
   a. THY02 Card: SW1-3 = ON.
   b. Every CAN Node JP14 =1-2.
2. Cycle power to the system (if it was necessary to correct a jumper position).



Ping a CN Port

1. Issue a DCN Command.

   Block Select Adjustments > Commands Startup > DCN > ENTER.

2. Press **UP** or **DOWN** to select the proper CN Node number, press **ENTER**, and **Ping a Port?** displays.

3. Press **UP**, and then press **UP** or **DOWN** to select the port of interest.

4. Press **ENTER**, and the selected CN Card displays. The ping information scrolls across the display. See Figure 4.

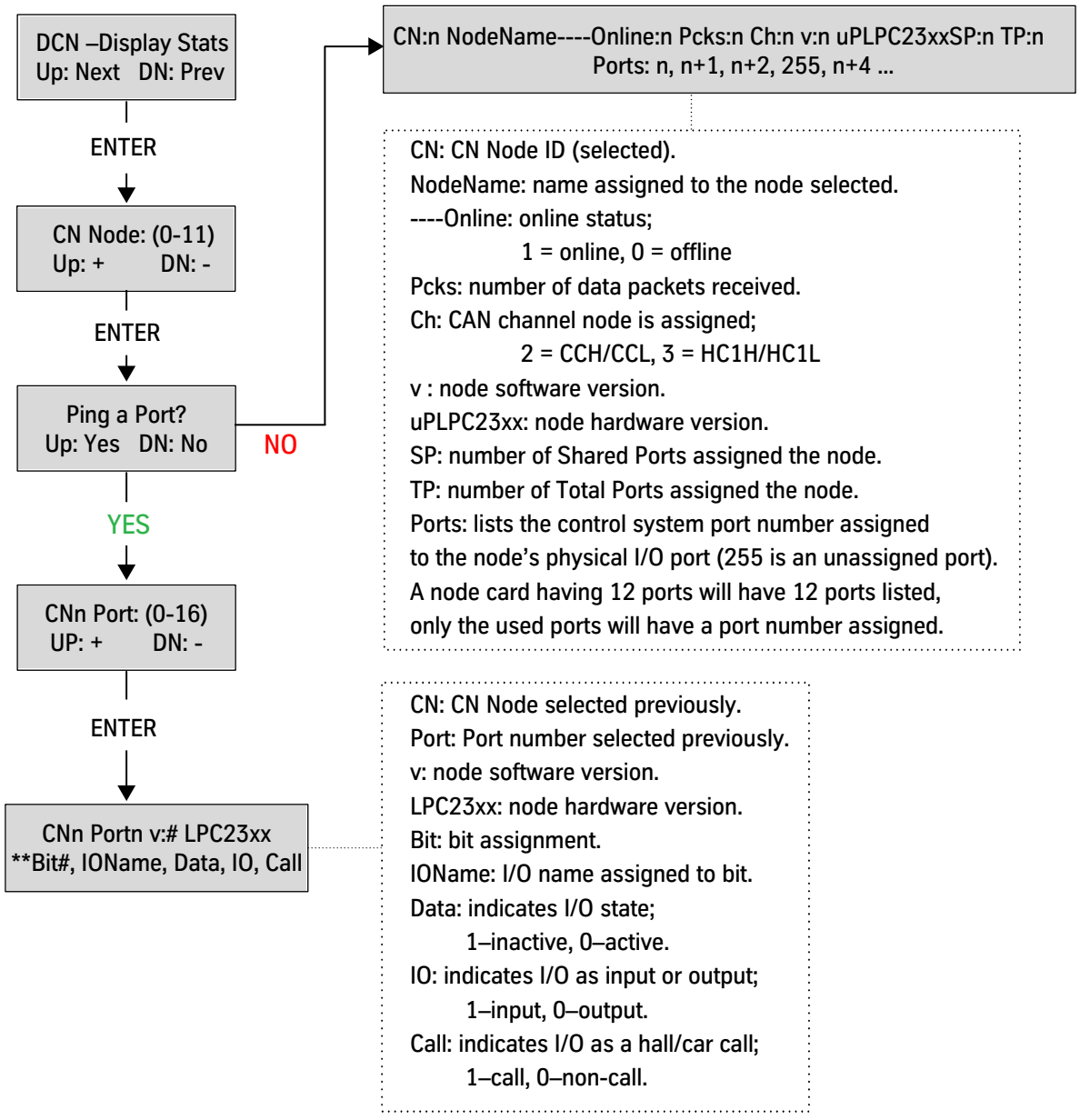


Figure 4 - Ping a CN Port Flowchart

Troubleshooting I/O Issues

I/O Reference Table

Port #	Correct I/O Pattern	I/O Number							
		1	2	3	4	5	6	7	8
1	01000101	**INCN**	**INCNM**	**INCNU**	**INCND**	**CDBM**	**CDBM2**	**HDBM**	**HDBM2**
2	00000000	**BYCST**	**BYHA**	**BYHAR**	**BYHAB**	**BYHAT**	**BYCDB**	**BYHDB**	**BYDZ**
3	11111111	**IB**	**IT**	**IF**	**IR**	**CB**	**CT**	**CF**	**CR**
4	11111111	**SAFSPM**	**SAFCPU**	**SAFCPM**	**SAFE**	**TSRCPU**	**CDCF**	**CDCR**	**CST**
5	010000--	**MCC1**	**MCC2**	**UFS**	**USS**	**DFS**	**DSS**	---	---
6	010000--	**MCC1M**	**MCC2M**	**UFSM**	**USSM**	**DFSM**	**DSSM**	---	---
7	0001-101	*MUTS*	*MCF*	*MCE*	*MCD*	---	*PRSW*	*OLTS*	*OLTO*
8	100-0100	*BLOM*	*BLO*	*CHKBLO*	---	**CHKTSR**	**CHKDS**	**TSRCPM**	**NTSNPM**
9	----------	*TPDR*	*TPDL*	*TPSR/TP3SR*	*TPSL/TPESL*	---	**DD**	---	---
10	00000001	**FSM**	**FSX**	**FSE**	**FST**	*FSSR*	*STBC*	*EPW*	**EPNP**
11	10101010	HATU	HATUM	HATD	HATDM	HABU	HABUM	HABD	HABDM
15	See Selector I/O Troubleshooting Section								
16									
17	00000101	**INCTM**	**INCTU**	**INCTD**	**INCTU2**	**INCTD2**	**INCT**	*INHA*	*INHAM*

LEGEND
'---' = Irrelevant
BOLD = I/O Always Present
I/O State = INACTIVE
I/O State = ACTIVE
ITALICIZED = Optional I/O

Table 2 - I/O Port # and I/O Correct Pattern
Ready to Run - Controller Inspection

- SAFE, CDCF, CDCR, CST and all interlock inputs (port 3) must be active with no critical controller faults in order for SAFSPM, SAFCPU, SAFCPM, and TSRCPU to be active.
- Any optional I/O present in the job software must be in the indicated state for the Correct I/O Pattern column.
- MCC2, MCC2M = Only seen on jobs with electronic or Wye-Delta starting.
- MUTS, MCF = Only seen on jobs with electronic starting.
- MCE, MCD = Only seen on jobs with across-the-line (1 contactor) starting.
- PRSW = Only seen on jobs equipped with a low pressure switch.
- OLTS, OLTO = Only seen on jobs equipped with viscosity control thermostats.
- INHA, INHAM = Only seen on jobs with hoistway access.
- Bit Patterns provided are for jobs with electronic starting and hoistway access.
- I/O locations marked with an X are either unassigned or have a signal assigned whose status is unimportant at this point. If required, see job's Car I/O Assignment Sheet.

Troubleshooting I/O Issues
(continued)

1. Check the controller fault log for applicable faults.
2. If Ports 1 - 10 all display zeros, both the Safety Processor and the NTSD Processor have mismatched I/O with the CPU.
   a. Check the F1 pico fuse on the IOF Card.
   b. Reload the controller generic files and the job configuration files. See Upload Software to CPU Cards on page 6-36.
   c. Configure the Safety Processor. See page 2-8.
   d. From Startup Wizard, scroll to Clear HN Config? > Config HN/CN > Verify All CN's.
3. If the SP and NP I/O mismatch faults still exist, then communication is faulty between the IOF and the CPUC. Replace the IOF or CPUC Cards.

Selector I/O Troubleshooting

	Port 15	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
		LVU	LVD	DZ1	DZ2	LVUR*	LVDR*	DZ1R*	DZ2R*
Car Position	@1	1	1	1	1	0	0	0	0
	On Directional Limit Bottom	1	0	1	1	0	0	0	0
	@top landing	1	1	1	1	0	0	0	0
	On Directional Limit Top	0	1	1	1	0	0	0	0
	Port 16	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
		TSR1	TSR2	NTST	NTSB	DL	x	x	x
Car Position	@1	0	0	0	1	0	x	x	x
	On Directional Limit Bottom	0	0	0	1	1	x	x	x
	@top landing	1	1	1	0	0	x	x	x
	On Directional Limit Top	1	1	1	0	1	x	x	x

Table 3 - Correct Selector I/O States

- LVUR*, LVDR*,DZ1R*, DZ2R* are only used for close floors—for that close floor, activate these I/Os instead of LVU, LVD, DZ1, DZ2.
- The I/O states for Bits 5-8 are a copy of the first four bits shown in Port 15 at a close landing; requires P12=1.

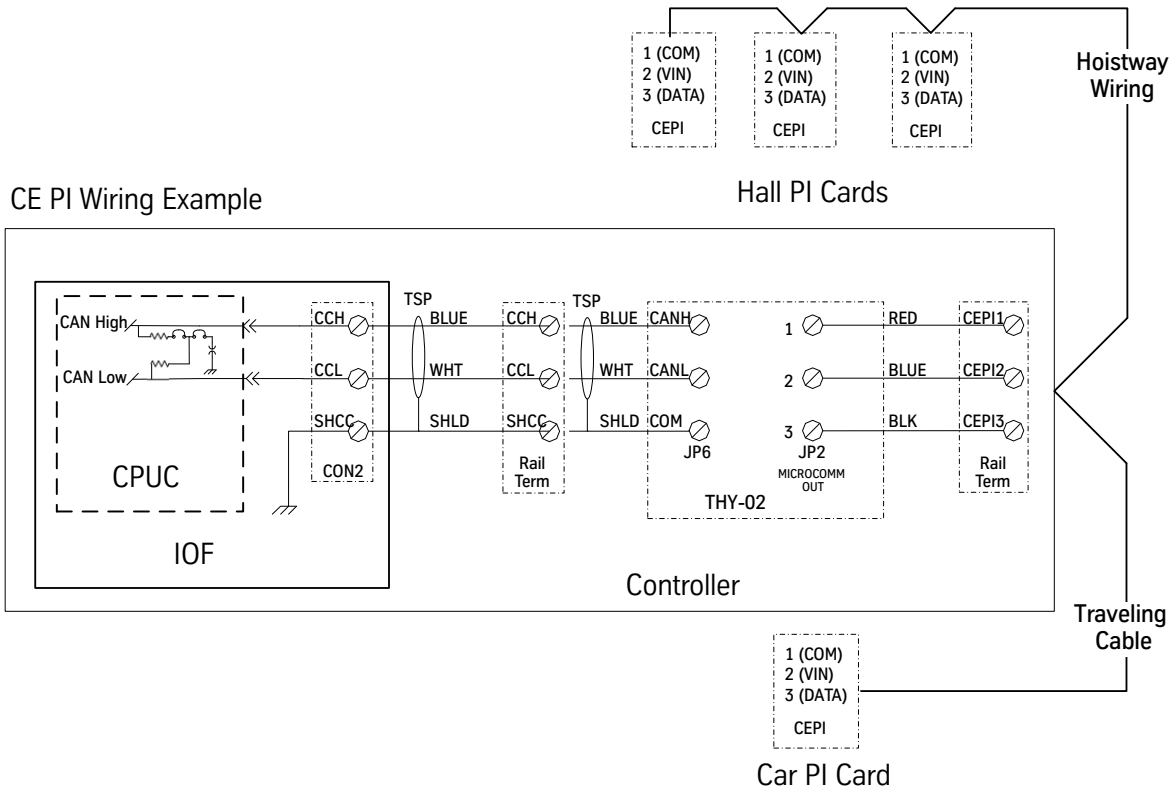
Troubleshooting Guide

Problem and Possible Causes	Possible Solutions
Car will not move from Car Top Inspection Operation with I/O & safety string checkout performed	1. Check EPNP. It should be active for normal power. Can prevent Up runs depending on E10 value. 2. Check PRSW. It should be active for normal conditions, and will prevent Down runs. 3. Check OLTO. It should be active for normal conditions, and will prevent UP runs. • 1074 fault is issued for inactive PRSW input. • 1019 fault is issued after a run attempt with OLTO inactive. 4. Verify that the appropriate INCTx inputs activate from the inspection button activation. 5. Troubleshoot the inspection station wiring per the job prints.
Safety Processor (SP) bad LED	• The SP monitors the safety critical inputs of the elevator system using safety nodes. • The SP monitors inputs for these functions: Door State, Door Bypassing, Inspection Operation (including Hoistway Access), Terminal Speed Reduction, and Speed Limit Enforcement. • All of these except Terminal Speed Reduction are also monitored by the CPU and the PLD. • In the event a safety node fails, loses communication, or reports an I/O state that disagrees with another monitoring subsystem, the SP BAD illuminates and faults are logged. • It is normal for the SP to remove power to the safety string without logging any faults for conditions that are considered normal operation. Example: IF/IR/IT/IB and no DCL = An open car door, SP inhibits a run until door is closed (or bypassed).
Safety Processor not configured for the job	1. Configure the Safety Processor. 2. Clear the faults by navigating to the Real Time Motion screen. a. Press **ENTER**, and then press **ENTER** a second time. b. Press **UP** and **DN** until **Reset Faults** appears in the display window. c. Press **ENTER**. d. Press **UP** until **Show Faults** appears in the display window. e. Determine if the controller has issued any faults. Pay specific attention to the 27xx fault series, as they are Safety Processor Faults. To correct these faults, see the *Diagnostics* section. 3. Disconnect IOF CON1, CON11, CON12, and CON40 (if anything is wired to them). a. Is the SP Good LED illuminated? b. Check and troubleshoot the recorded faults for hoistway access related I/O issues.
How to locate the I/O of Interest	Use the job prints or the text files.
	1. Use the System Port Assignment from the text file or Port/Bit location from job prints. 2. Access Quick Commands > Show I/O? to monitor the I/O. (Block Select Real Time Motion > ENTER > ENTER > Show I/O?). 3. Press UP or DOWN to select the port of interest. The display will show two ports at the same time. Each row will show: Bit Assignment #, Assigned I/O name followed by the present state of all eight bits for the port. The bit order is 1-8, left to right on the display. Row 1: 1 INCN 01000101 Row 2: 1 BYCST 00000000 • This I/O display is in metered logic. • This I/O display is "live" and changes when the input changes. 4. Press **ENTER** to cycle through each bit's I/O name. 5. Press **UP** or **DN** to scroll to different ports. 6. Press **ESC** to exit Quick Commands.

Problem and Possible Causes *(cont.)*	Possible Solutions
The CAN node failed verification. Most likely the "In Mask" or "Call Mask" has an error caused by unstable communications during the configure process.	1. Verify the node LEDs: PWR is ON steady, and STAT is flashing slow. 2. Verify the jumper positions. See CAN Node Address Assignment on page 4-4. • If the address jumpers are correct, see Configure the CAN Nodes on page 4-4. JP14 = position 1-2. JP8 = OFF. • If jumpers were corrected, press RST. 3. Verify that CE MicroComm Card (THY-02) SW1 position 3, is in the ON position. 4. With power removed from the controller, verify 60 ohms +/-3 ohms between CCH/CCL. See the *CAN Channel Troubleshooting Guide* (if needed). 5. Use the DCN command to ensure that the associated node reports as online 6. Issue a TECCR Command (Block Select Startup Wizard > Clear CN Config). 7. Issue a TECC Command (Block Select Startup Wizard > Config CN).
Jack will not resync	1. Verify if BLO is populated in the I/O map, port 8 bit 2. If not, contact ITS Field Engineering. 2. The following are also required for jobs which have a bottom final limit: BLOM and CHKBLO inputs and a BLO relay. 3. Issue a WJR Command. See when and why the last resync happened. 4. Issue a FJR Command. The car should immediately perform a jack resync. 5. To change the frequency of jack resync, check and adjust the following parameters: O29, O30, O31, O32, and O44.
Hoistway access not functioning	Hoistway Access inputs are not checked for conflicts until Hoistway Access is enabled. 1. Verify these adjustments are set per job conditions: Z38, Z39, O21, O11, and O22. 2. Use job prints to troubleshoot hardware/wiring issues related to Hoistway Access switches.
SP/NP/PLD not online	1. Disconnect all CAN channels from the IOF Card. 2. Use VER or Status to check reported software versions for each processor. 3. If still v0r0, then if all are v0r0, replace the CPU. 4. If any one processor (SP/NP/PLD) reports a version/revision, replace the IOF Card.
Controller stuck on Emergency Power Operation	The IOF has two inputs, and both inputs have to indicate that Normal Power or Emergency Power Operation are activated. IOF CON18, pin 1 has 120 VAC for normal power. IOE CON39, pin 6 has zero VDC for normal power. • Connection issue between trades and CON39 of IOF Card. • Bad generator contact for EPNP. • If voltages are correct at the IOF Car, a failed IOF Card.

CE MicroComm Troubleshooting

Problem	Possible Solutions
• NC Displays. • No LEDs active. • Card not active when power is applied.	• Verify that the CAN resistive loading equals 60 ohms. • Set O43=9. • Startup Wizard > Write to Flash. • Cycle power to the controller.
PIs Do Not Display	The PIs should display the information shown on the THY02 Card display. If not, verify all wiring for the PIs, start at the THY02 MicroComm and work out.
	Check the power supply on the following; Observe proper polarity. • THY02 Card: +VDC (P24), COM (G24) • PI Connectors: MicroComm1 is CEPI1 = COM (G24). MicroComm2 is CEPI2 = +VDC (24VDC). MicroComm3 is CEPI3 = DATA.
	• Place THY02 Card SW1-1 in the ON position. • THY02 Card and all PIs should scroll through the test output from the THY02 Card. The PIs fail to display due to a wiring issue, the PIs are the wrong type, or the PIs are not MicroComm. If the THY02 Card fails to display and the PIs fail to display the test sequence, the THY02 Card is most likely the issue.
	If PIs have power when the controller's disconnect is turned OFF: • The CE MicroComm Card and Hoistway Access switches are fed 24VDC from F-P24HF for grouped controllers having CE PIs. • Open the fuse holder F-P24HF to remove 24VDC from the PIs and HA switches.



Motor Data for Siemens Electronic Starter

Motor HP	Motor Voltage	Nameplt Amps	Wiring Config.	Overload Current Setting	Overload Current Range
5	200V/208V	17.5	LINE	17.5	13-27
	220V	15.9	LINE	15.9	13-27
	230V	15.2	LINE	15.2	13-27
	380V	9.2	LINE	9.2	9-18
	415V	8.4	LINE	8.4	9-18
	460V	7.6	LINE	7.6	9-18
	575V	6.1	LINE	6.1	5-10
7.5	200V/208V	25	LINE	25	20-40
	220V	23	LINE	23	20-40
	230V	22	LINE	22	20-40
	380V	13	LINE	13	13-27
	415V	12	LINE	12	9-18
	460V	11	LINE	11	9-18
	575V	9	LINE	9	9-18
10	200V/208V	32	LINE	32	30-60
	220V	29	LINE	29	22-45
	230V	28	LINE	28	22-45
	380V	17	LINE	17	13-27
	415V	15	LINE	15	13-27
	460V	14	LINE	14	13-27
	575V	11	LINE	11	9-18
15	200V/208V	48	LINE	48	45-90
	220V	44	LINE	44	45-90
	230V	42	LINE	42	45-90
	380V	25	LINE	25	20-40
	415V	23	LINE	23	20-40
	460V	21	LINE	21	20-40
	575V	17	LINE	17	13-27
20	200V/208V	62	LINE	62	45-90
	220V	56	LINE	56	45-90
	230V	54	LINE	54	45-90
	380V	33	LINE	33	30-60
	415V	30	LINE	30	22-45
	460V	27	LINE	27	20-40
	575V	22	LINE	22	20-40
25	200V/208V	78	LINE	78	67-135
	220V	71	LINE	71	67-135
	230V	68	LINE	68	67-135
	380V	41	LINE	41	30-60
	415V	37	LINE	37	30-60
	460V	34	LINE	34	30-60
	575V	27	LINE	27	20-40

Motor HP	Motor Voltage	Nameplt Amps	Wiring Config.	Overload Current Setting	Overload Current Range
30	200V/208V	92	LINE	92	67-135
	220V	84	LINE	84	67-135
	230V	80	LINE	80	67-135
	380V	48	LINE	48	45-90
	415V	44	LINE	44	45-90
	460V	40	LINE	40	30-60
	575V	32	LINE	32	30-60
40	200V/208V	120	PHASE	120	67-135
	220V	109	PHASE	109	45-90
	230V	104	PHASE	104	45-90
	380V	63	LINE	63	67-135
	415V	57	LINE	57	45-90
	460V	52	LINE	52	45-90
	575V	41	LINE	41	30-60
50	200V/208V	150	PHASE	150	67-135
	220V	136	PHASE	136	67-135
	230V	130	PHASE	130	67-135
	380V	79	LINE	79	67-135
	415V	72	LINE	72	67-135
	460V	65	LINE	65	67-135
	575V	52	LINE	52	45-90
60	200V/208V	177	PHASE	177	90-180
	220V	161	PHASE	161	67-135
	230V	154	PHASE	154	67-135
	380V	93	LINE	93	67-135
	415V	85	LINE	85	67-135
	460V	77	LINE	77	67-135
	575V	62	LINE	62	45-90
75	200V/208V	221	LINE	221	90-180
	220V	201	LINE	201	90-180
	230V	192	LINE	192	90-180
	380V	116	LINE	116	67-135
	415V	106	LINE	106	45-90
	460V	96	LINE	96	45-90
	575V	77	LINE	77	67-135

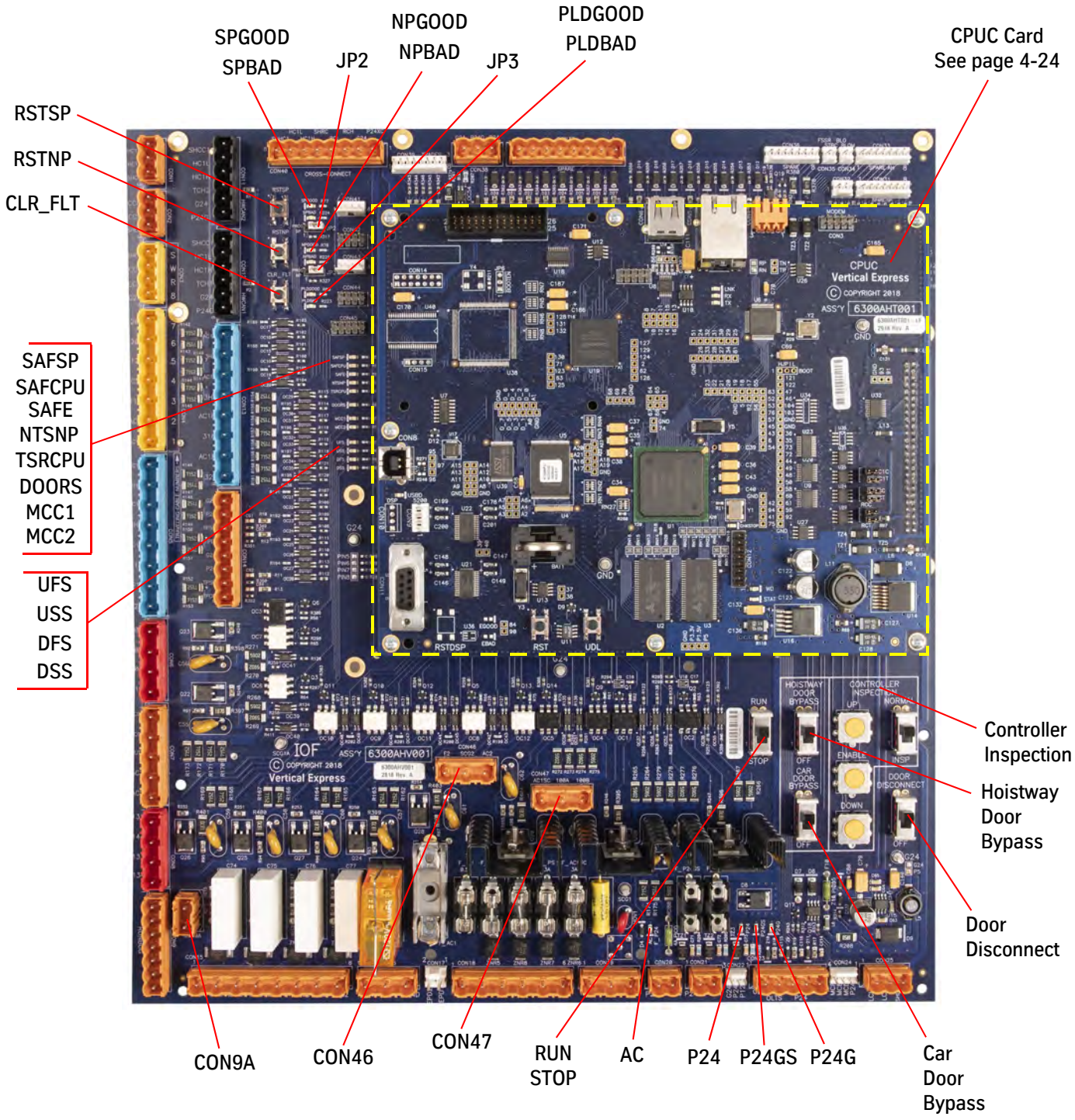
Transformer Configuration Data

Print No.	Primary			Secondary		
	Voltage	Connections	Configuration	Voltage	Connections	Configuration
874DA1	208	H1 & H2	None	120	X1 – X4	X1—X3, X2—X4
874DA2	240	H1 & H4	H1 – H3, H2 – H4	120	X1 – X4	X1—X3, X2—X4
	480	H1 & H4	H2 – H3			
874DA3*	240	H1 & H4	H1 – H3, H2 – H4	120	X1 – X4	X1—X3, X2—X4
874DA4*	380	H1 & H2	None	120	X1 – X4	X1—X3, X2—X4
	400	H1 & H3				
874DA5	416	H1 & H4	None	120	X1 – X4	X1—X3, X2—X4
	600	H1 & H2				
874DA6**	200	H1 & H2	None	120	X1 – X4	X1—X3, X2—X4
	220	H1 & H3				
874DB1	208	H1 & H2	None	120	X1 – X4	X1—X3, X2—X4
874DB2	240	H1 & H4	H1 – H3, H2 – H4	120	X1 – X4	X1—X3, X2—X4
	480	H1 & H4	H2 – H3	120	X1 – X4	X1—X3, X2—X4
874DB3	600	H1 & H2	None	120	X1 – X4	X1—X3, X2—X4
874DC1*	200	H1 & H2	None	120	X1 – X4	X1—X3, X2—X4
	220	H1 & H3				
874DC3*	380	H1 & H2	None	120	X1 – X4	X1—X3, X2—X4
	400	H1 & H3				
	415	H1 & H4				
874DJ1*	208	H1 & H2	None	120/240	X1 – X4	X1—X3, X2—X4
	208	H2 & H3				
	575	H1 & H4				
874DJ2*	380	H1 & H2	None	120/240	X1 – X4	X1—X3, X2—X4
	400	H3 & H4				
	415	H1 & H4				
874DJ4*	240	H1 & H4	H1 – H3, H2 – H4 H2 – H3	120/240	X1 – X4	X1—X3, X2—X4 X2 – X3
	400	H1 & H4				
	480	H1 & H4				
874DK1	230	H1 & H4	H1 – H3, H2 – H4	120	X1 – X2	None
	460	H1 & H4	H2 – H3			
874DL1	230	H1 & H4	H1 – H3, H2 – H4	120	X1 – X2	None
	460	H1 & H4	H2 – H3			
874DL2*	208	H1 & H2	None	120	X1 – X3	None
874DL3*	575	H1 & H4	None	120	X1 – X4	None
874DP1	208	H4 & H4	None	120/240	X1 – X4	X1—X3, X2—X4
874DW1	200	H1 & H2	None	120	X1 – X4	X1—X3, X2—X4
	220	H1 & H3				

* Used for 50 Hz AND 60 Hz applications.
** Used ONLY for 50 Hz applications.

On-Card Diagnostics

IOF Card (6300AHV001)



IOF - LED Definitions

LED	Color	Desired Status	Definition
NPBAD	Red	OFF	ON if the NTSD processor has detected a system critical fault.
NPGOOD*	Green	ON	ON if the NTSD processor is running with no faults.
SPBAD	Red	OFF	ON if the safety processor has detected a system critical fault.
SPGOOD*	Green	ON	ON if the safety processor is running with no faults.
PLDBAD	Red	OFF	ON if the PLD has detected a fault.
PLDGOOD	Green	ON	ON if the PLD is running with no faults.
AC	Green	ON	ON if 120VAC present at CON18, relay EPEN energized, and fuses F-EP and F-PS are good.
DOORS	Green	ON	All hoistway and car doors are closed, or Open doors are being bypassed due to a car in the door zone, HWAS Operation, or door bypass switch use, or Car doors are open and the end of a run check is active (typically not viewable LED activity due to the speed of that check)
		OFF	One or more hoistway and/or car doors are open, or Open doors are not being bypassed by the car being in the door zone, HWAS Operation, or door bypass switch use, or Car doors are open and the end of a run check is not active (typically not viewable LED activity due to the speed of that check)
P24	Green	ON	ON if 24VDC is present at CON20 and fuse F-P24 is good.
P24G	Green	ON	ON if 24VDC is present at CON20 and fuses F-P24GS and F-P24G are good (or if 24VDC is fed by another powered-up car in the group via CON21 cross-connections).
P24GS	Green	N/A	Not used.
DFS	Green	~	ON if the system is trying to energize the DOWN FAST valve solenoid.
DSS	Green	~	ON if the system is trying to energize the DOWN SLOW valve solenoid.
UFS	Green	~	ON if the system is trying to energize the UP FAST valve solenoid.
USS	Green	~	ON if the system is trying to energize the UP SLOW valve solenoid.
MCC1	Green	ON	ON if the system is trying to start the pump motor (contactor or electronic starting).
MCC2	Green	~	ON if the system is trying to start the pump motor (contactor starting) or provide power to the starter (electronic starter).
SAFCPU	Green	ON	ON if the CPUC is allowing a complete safety string (SAFCPU output commanded ON). OFF when the CPUC has opened the safety string (SAFCPU output commanded OFF).
SAFSP	Green	ON	ON if safety processor is allowing a complete safety string (SAFSP output commanded ON). OFF when the safety processor has opened the safety string (SAFSP output commanded OFF).
SAFE	Green	ON	ON if 120VAC from a complete safety string is present at terminal 131 as seen by the CPUC.
NTSNP	Green	ON	ON if the NTSD processor is allowing a high speed run (NTSNP output commanded ON). OFF when the NTSD processor is forcing the FAST solenoids off when the selector encounters a terminal slowdown magnet (NTSNP output commanded OFF).
TSRCPU	Green	ON	ON if the CPUC is allowing car movement in a terminal zone (TSRCPU output commanded ON). OFF when the CPUC is forcing all valve solenoids off when the selector encounters a terminal slowdown magnet and other terminal speed reduction efforts have failed to slow down the car (NTSNP output commanded OFF).

*Certain system conditions will let the SP or NP open the safety string, have SPGOOD/NPGOOD LEDs illuminated, and have no faults. Example: Interlock Open (IT,IF, IR, IB, CT, CB, CF, or CR).

IOF - Shunt Jumper Definitions/Settings

Name	Purpose	Position and Function
JP2	Configure Safety Processor	1-2: Programming Mode (PLD will open safety string).
		2-3: Normal Operation (default)
JP3	Configure NTSD Processor	1-2: Programming Mode (PLD will open safety string).
		2-3: Normal Operation (default)

IOF - CON Jumper Definitions/Settings

Name	Purpose	Position and Function
CON47	Jump out SAFSP and/or SAFCPU	1-2: Jumps out SAFSP.
		2-3: Jumps out SAFCPU.
CON46	Jump out NTSNP and/or TSRCPU	1-2: Jumps out NTSNP.
		2-3: Jumps out TSRCPU.
CON9A	Temporary Runbug Operation	1-2: Allows a complete safety string to the motor and valve when the runbug has been removed from CON9.

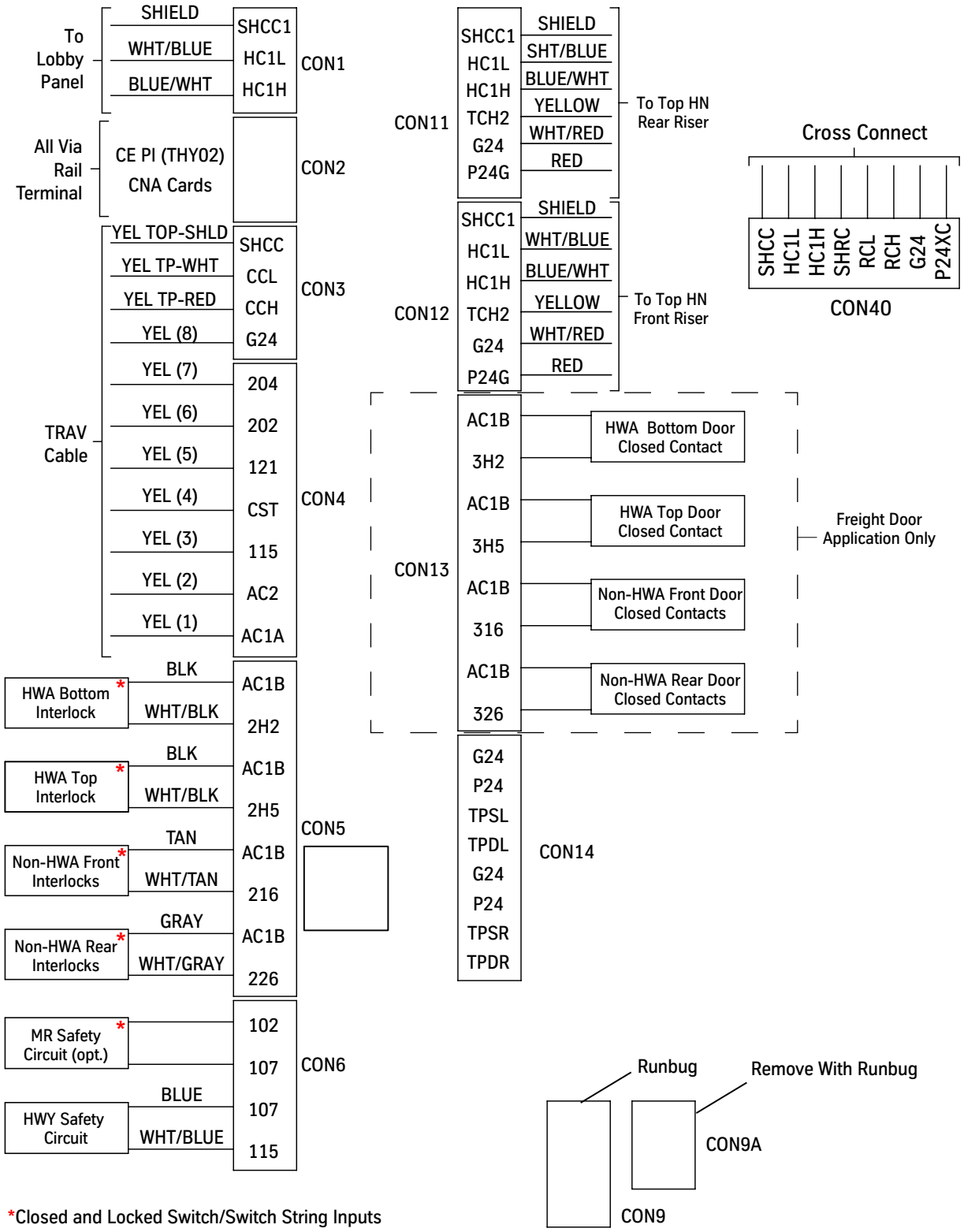
IOF - Push Buttons and Switches

Name	Type	Function
RSTSP	Pushbutton	Reset Safety Processor (SP).
RSTNP	Pushbutton	Reset NTSD Processor (NP).
CLR_FLT	Pushbutton	Clear Latched PLD Faults.
RUN	Slide	Run/Stop - Closes/Opens safety string.
HOISTWAY DOOR BYPASS	Slide	Requests Hoistway Door Bypass ON or OFF.
CAR DOOR BYPASS	Slide	Requests Car Door Bypass ON or OFF.
DOOR DISCONNECT	Slide	Requests Door Disconnect ON or OFF.
INCN	Slide	Requests Controller Inspection ON or OFF.
UP	Pushbutton	Requests movement in UP direction when INCN is ON and ENABLE is pressed.
ENABLE	Pushbutton	Enables UP/DOWN when INCN is ON.
DOWN	Pushbutton	Requests movement in DOWN direction when INCN is ON & ENABLE is pressed.

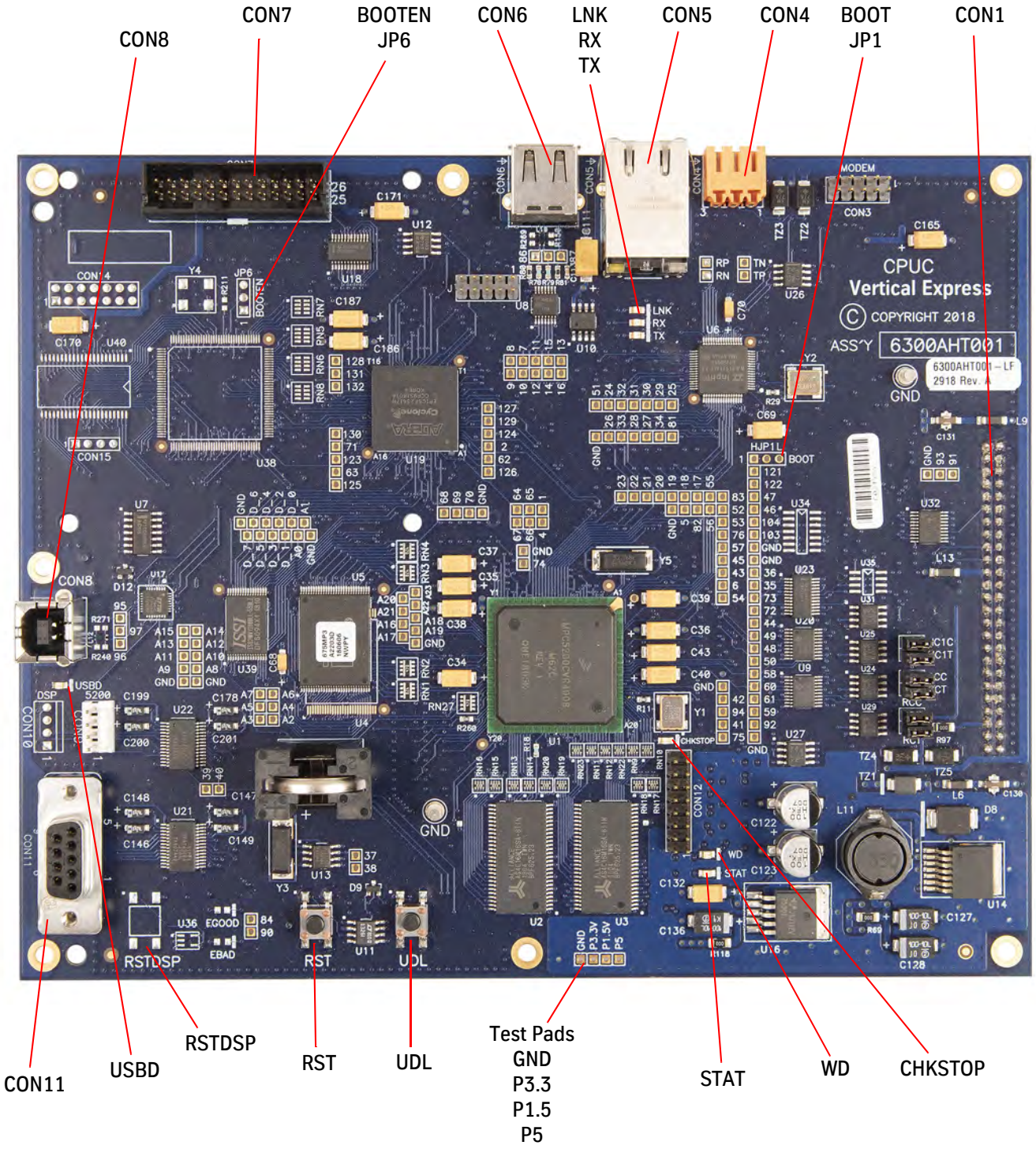
IOF Fuses

Fuse	Current Rating	Function
F-EP	0.5A	Feeds 120VAC to the EPEN relay coil.
F-PS	3.0A	Feeds 120VAC to the controller power supplies.
F-AC1A	6.0A	Feeds 120VAC to the car, including door operators and car DC power supply.
F-AC1B	0.5A	Feeds 120VAC to the hoistway door interlock circuits.
F-AC1SC	3.0A	Feeds 120VAC to the safety circuit, including Triac outputs.
F-P24	4.0A	Feeds 24VDC lower voltage supplies and all 24V I/O in the controller.
F-P24G	Variable	Feeds 24VDC to the hall risers wired to this controller. Variable based on power requirements of risers connected to this controller.
F-P24GS	N/A	Not Used.
F-AC1	Variable	Feeds 120VAC from the T1 transformer X1 tap (CON16-1) to the source voltage for the EPEN relay and contacts (CON18-1) to feed the system AC power (does not fuse UPS output).
F-P24L	1.0A	Feeds 24VDC to the CPUC Card.

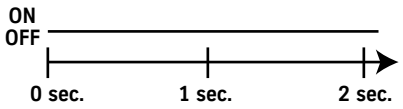
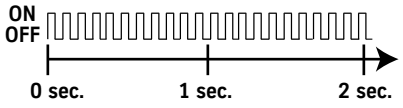
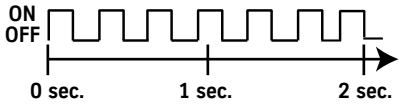
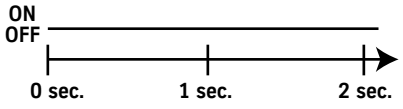
IOF Connectors/Wiring



CPUC Card (6300AHT001)



CPUC - LED Definitions

LED	LED Name	Color	LED Flash Rate	LED Function
STAT	CPU Status	Red		LED is OFF in Normal Mode.
				LED flashes continuously at 100ms rate if no job file is loaded to flash or a bad reload of data to flash has occurred.
				
WD	Watchdog	Green		LED flashes at 300ms for 3 intervals if upload successful, then CPU reboots and LED turns ON.
LNK	Ethernet Link	Green	~	LED is ON if power is good, card is not in reset, FPGA is configured, and Watchdog has not timed out.
RX	Ethernet Receive	Green	Varies depending on activity	Ethernet Status - Link Good
TX	Ethernet Transmit	Green	Varies depending on activity	LED flashes while Ethernet Link is receiving.
USBD	USB Device	Green	Varies depending on activity	LED flashes during activity on the USB device port.
CHKSTOP	~	Green	Varies depending on activity	Manufacturing use.

CPUC - Connectors

Connector	Name	Function
CON1	IOF Interface	Interface connector to IOF Card
CON4	485	Currently not used
CON5	Ethernet	Standard RJ45 connector and MDI pin out, used for Inter-Group communication instead of CAN (RCH/RCL)
CON6	USB Host	Standard USB Type A connector, used for loading software to the CPUC Card
CON7	UIT	User Interface Tool connector
CON8	USB Device	Standard USB Type B connector, used for connecting Owner's IMS via a PC's USB port
CON11	RS232 D-Shell	Standard RS232 9 pin D-Shell for connecting Owner's IMS via a PC's serial port

CPUC Shunt Jumper Definitions and Settings

Name	Status	Function
CCC	On	Car CAN channel split capacitor enabled.
	Off	Car CAN channel split capacitor disabled.
CCT	On	Car CAN channel loading resistors enabled.
	Off	Car CAN channel loading resistors disabled.
HC1C	On	Hoistway CAN channel split capacitor enabled.
	Off	Hoistway CAN channel split capacitor disabled.
HC1T	On	Hoistway CAN channel loading resistors enabled.
	Off	Hoistway CAN channel loading resistors disabled.
RCC	On	Intra-Group CAN channel split capacitor enabled.
	Off	Intra-Group CAN channel split capacitor disabled.
RCT	On	Intra-Group CAN channel loading resistors enabled.
	Off	Intra-Group CAN channel loading resistors disabled.
BOOT (JP1)	1-2	Boot High, Recover Operation.
	2-3	Boot Low, Normal Operation.
If termination is required on any CAN channels, both loading resistor and split capacitor jumpers are to be ON for termination to function properly. If no termination is required, then both jumpers must be removed.		

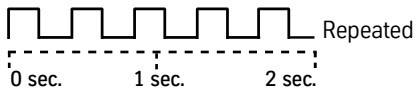
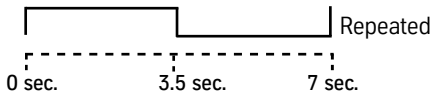
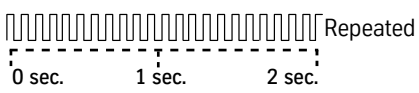
CPUC Power Supply Tolerances

Supply Name	Minimum Voltage	Maximum Voltage
P5	4.85VDC	5.25VDC
P3.3	3.20VDC	3.46VDC
P1.5	1.48VDC	1.57VDC

CPUC Switch Functions

Name	Function
RST	Resets the CPU on the CPUC Card.
UDL	Used to put CPU in Upload Operation.

CAN Node - LED Definitions

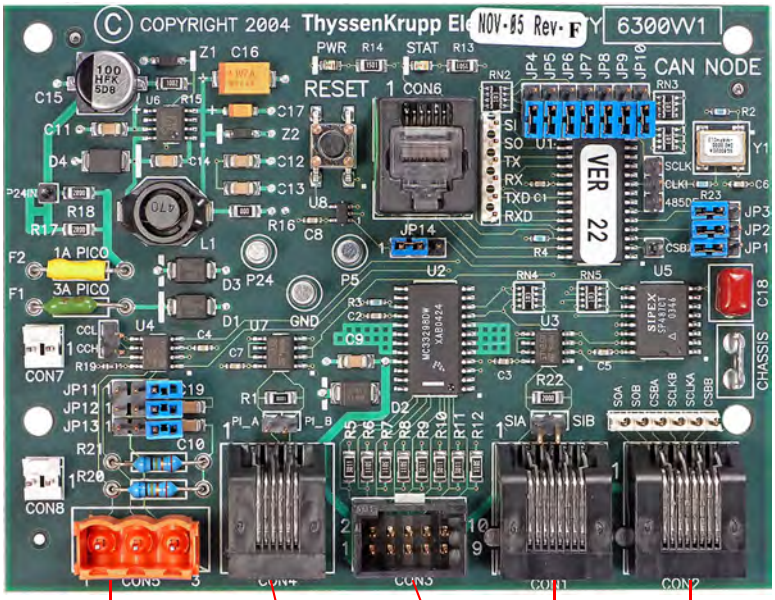
LED	Description	Color	LED State (1=ON, 0=OFF)	Condition	Status
STAT	Status	Green		Start-up	CAN Communication Not Yet Established
				—	Software Running Properly
				—	CAN Communication Error
PWR	Power	Green	Continuous ON	Anytime	5V Supply Operational
			Continuous OFF		Bad Fuse/Connection

CAN Node Jumpers

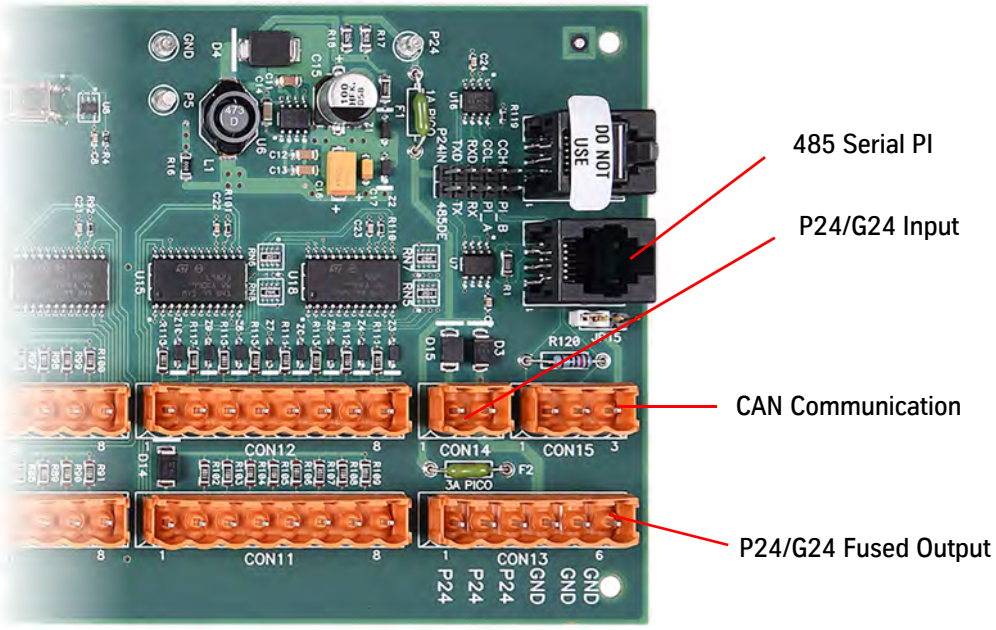
CAN Card Node Addressing				
	JP7	JP6	JP5	JP4
CAN Card 0	OFF	OFF	OFF	OFF
CAN Card 1	OFF	OFF	OFF	ON
CAN Card 2	OFF	OFF	ON	OFF
CAN Card 3	OFF	OFF	ON	ON
CAN Card 4	OFF	ON	OFF	OFF
CAN Card 5	OFF	ON	OFF	ON
CAN Card 6	OFF	ON	ON	OFF
CAN Card 7	OFF	ON	ON	ON
CAN Card 8	ON	OFF	OFF	OFF
CAN Card 9	ON	OFF	OFF	ON
CAN Card 10	ON	OFF	ON	OFF
CAN Card 11	ON	OFF	ON	ON

CAN Card Node (Channel 3) Group Addressing Note: This data not currently used.				
	JP3	JP2	JP1	JP8
CAR 1	OFF	OFF	OFF	ON
CAR 2	OFF	OFF	ON	ON
CAR 3	OFF	ON	OFF	ON
CAR 4	OFF	ON	ON	ON
CAR 5	ON	OFF	OFF	ON
CAR 6	ON	OFF	ON	ON
CAR 7	ON	ON	OFF	ON
CAR 8	ON	ON	ON	ON
COMMON CAN*	OFF	OFF	OFF	OFF
*These jumpers should remain OFF for typical CAN applications.				

CAN Auxiliary Jumper Settings			
Jumper	Position	Default	Description
JP9	ON	As appropriate	Enables on-card port SPI I/O.
	OFF		Disables on-card port SPI I/O. Off-card SPI I/O only.
JP10	1 to 2	Not Jumped	Provisional programming jumper.
JP11 and JP15	1 to 2	Not Jumped	Connects the CAN communication shield wiring to digital ground reference.
	2 to 3		Connects the CAN communication shield wiring to chassis ground reference.
JP12	1 to 2	Not Jumped	Connects the CAN communication shield wiring bypassing split capacitor.
	2 to 3		Connects the CAN communication shield wiring to split capacitor.
JP13	1 to 2	Not Jumped	Connects the CAN communication split capacitor to digital ground reference.
	2 to 3		Connects the CAN communication split capacitor to chassis ground reference.
JP14	1 to 2	1 to 2	Normal operation.
	2 to 3		Programming uploading software.



CAN Jumpers
(continued)



CNA Card (6300AAW)

LHV Jumpers

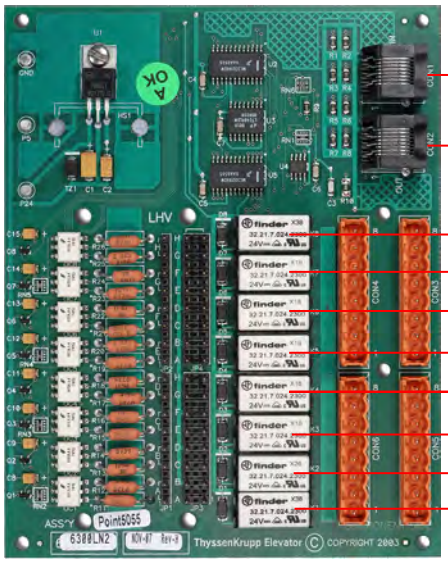
INPUT		Signal Connection		Common Connection		Connect Input Common To Bus
Port	Bit	CON	Pin	CON	Pin	Jumper
1	1	5	1	6	1	JP3-A
	2		3		3	JP3-C
	3		5		5	JP3-E
	4		7		7	JP3-G
	5	3	1	4	1	JP4-A
	6		3		3	JP4-C
	7		5		5	JP4-E
	8		7		7	JP4-G

Connect Input To Output	
Jumper	
JP1-A	I/O#1
JP1-B	I/O#2
JP1-C	I/O#3
JP1-D	I/O#4
JP2-E	I/O#5
JP2-F	I/O#6
JP2-G	I/O#7
JP2-H	I/O#8

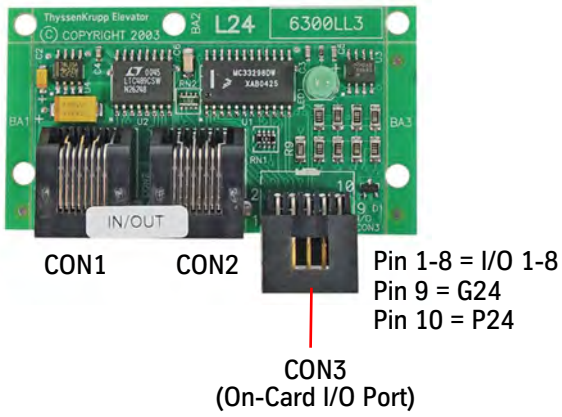
OUTPUT		Signal Connection		Common Connection		Connect Input Common To Bus
Port	Bit	CON	Pin	CON	Pin	Jumper
2	1	5	2	6	2	JP3-B
	2		4		4	JP3-D
	3		6		6	JP3-F
	4		8		8	JP3-H
	5	3	2	4	2	JP4-B
	6		4		4	JP4-D
	7		6		6	JP4-F
	8		8		8	JP4-H

L24/LHV/S24-1/S24-2 Cards

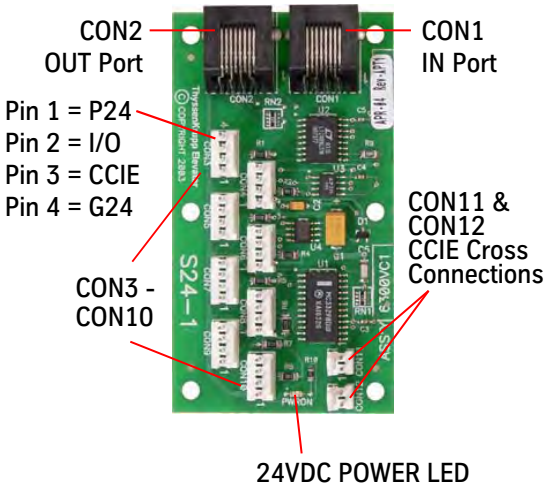
LHV Card
6300PR



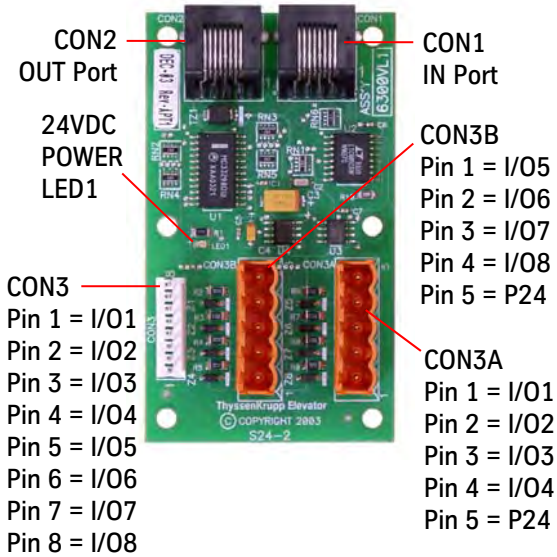
L24 Card
6300LL4



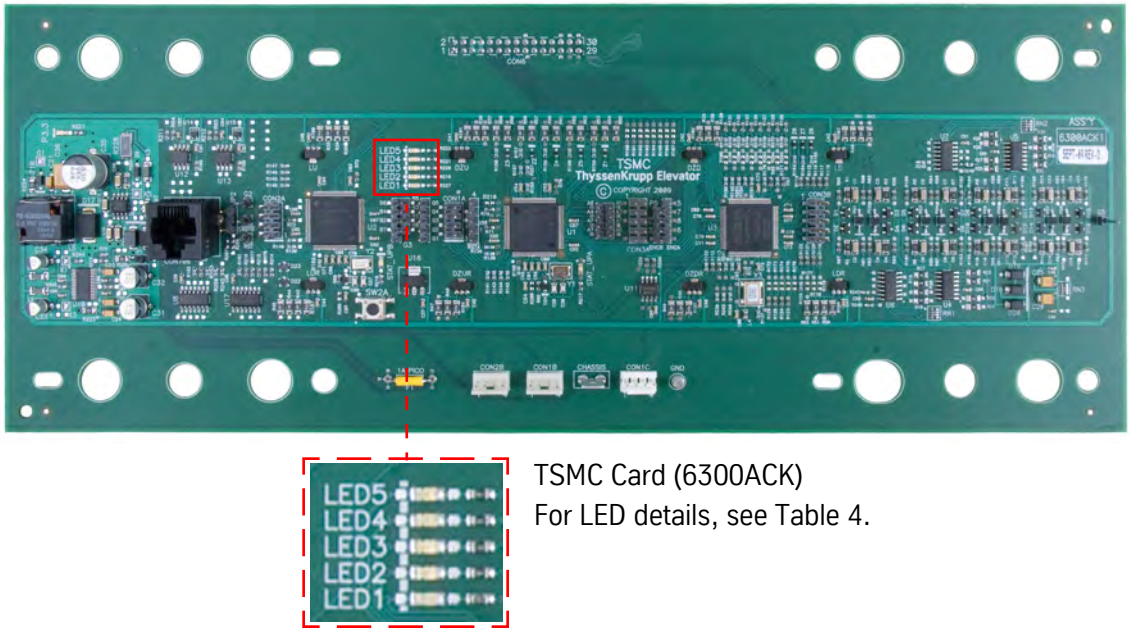
S24-1 Card
6300VC1



S24-2 Card
6300VL1



CAN Selector LEDs



TSMC Card (6300ACK)
For LED details, see Table 4.

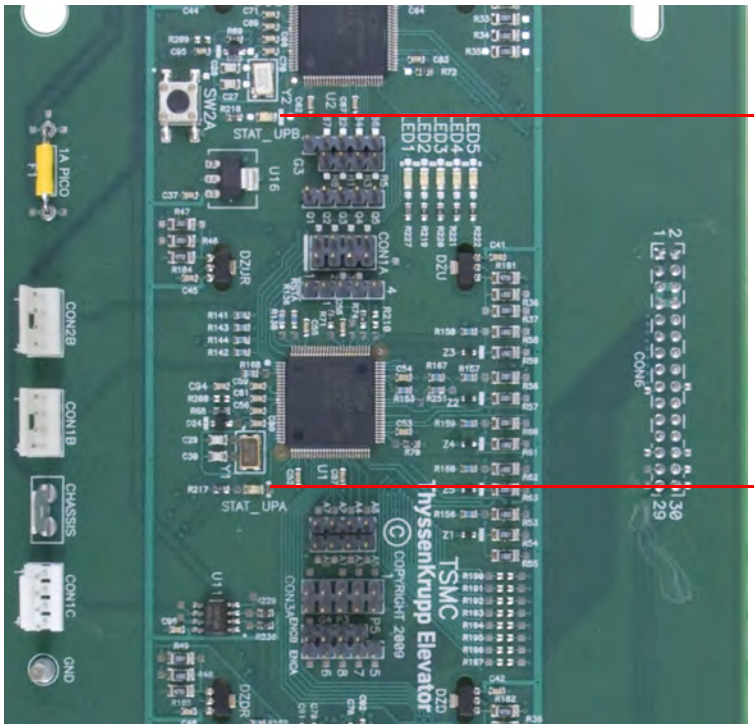
LED	Color	Normal Operation	Fault Operation
1	Red	OFF	Blinks 1/4 second ON, 1/4 second OFF
2	Green	Blinks 1 second ON, 1 second OFF	Displays fault code 1 or 2
3	Green	Not used, should be OFF	
4	Green	Status of encoder phase A, ENCA	Fault Code 2, ON Solid
5	Green	Status of encoder phase B, ENCB	Fault Code 1, ON Solid
Fault Codes	**Description**	**Definition**	**Causes**
1	TSMC Main Card ID Error	A mismatch between what the internal firmware expects for TSMC Card ID Code and what is detected on the board.	Problem on the TSMC Card or in the firmware.
2	TSAC Aux. Card ID Error	A mismatch between what the internal firmware expects for the TSAC Card ID code and what is detected on the board.	• The TSAC not connected to the TSMC; TSAC upside down. • Problem with the ID code on the TSAC. • Problem with the firmware or TSMC circuity. • Incorrect auxiliary card.
Note: The IR LEDs of the encoder are disabled.			

Table 4 - CAN Selector LEDs

CAN Selector Fuses

Fuse	Current Rating	Function
F1	1.0A	Feeds P24 from Selector CAT5 cable to 5.0VDC (P5) & 3.3VDC (P3.3) on-board power supplies.

ARM Processor Status LEDs



STAT_UPB - Status LED for the UPB ARM Under normal operation, the processor blinks ON and OFF (4 sec. ON, 4 sec. OFF). If the CAN Bus communication is lost, the LED blinks faster.

STAT_UPA - Status LED for the UPA ARM Under normal operation, the processor blinks ON and OFF (4 sec. ON, 4 sec. OFF). If the CAN bus communication is lost, the LED blinks faster.

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SERVICE INFORMATION SECTION

SERVICE INFORMATION SECTION

Contents

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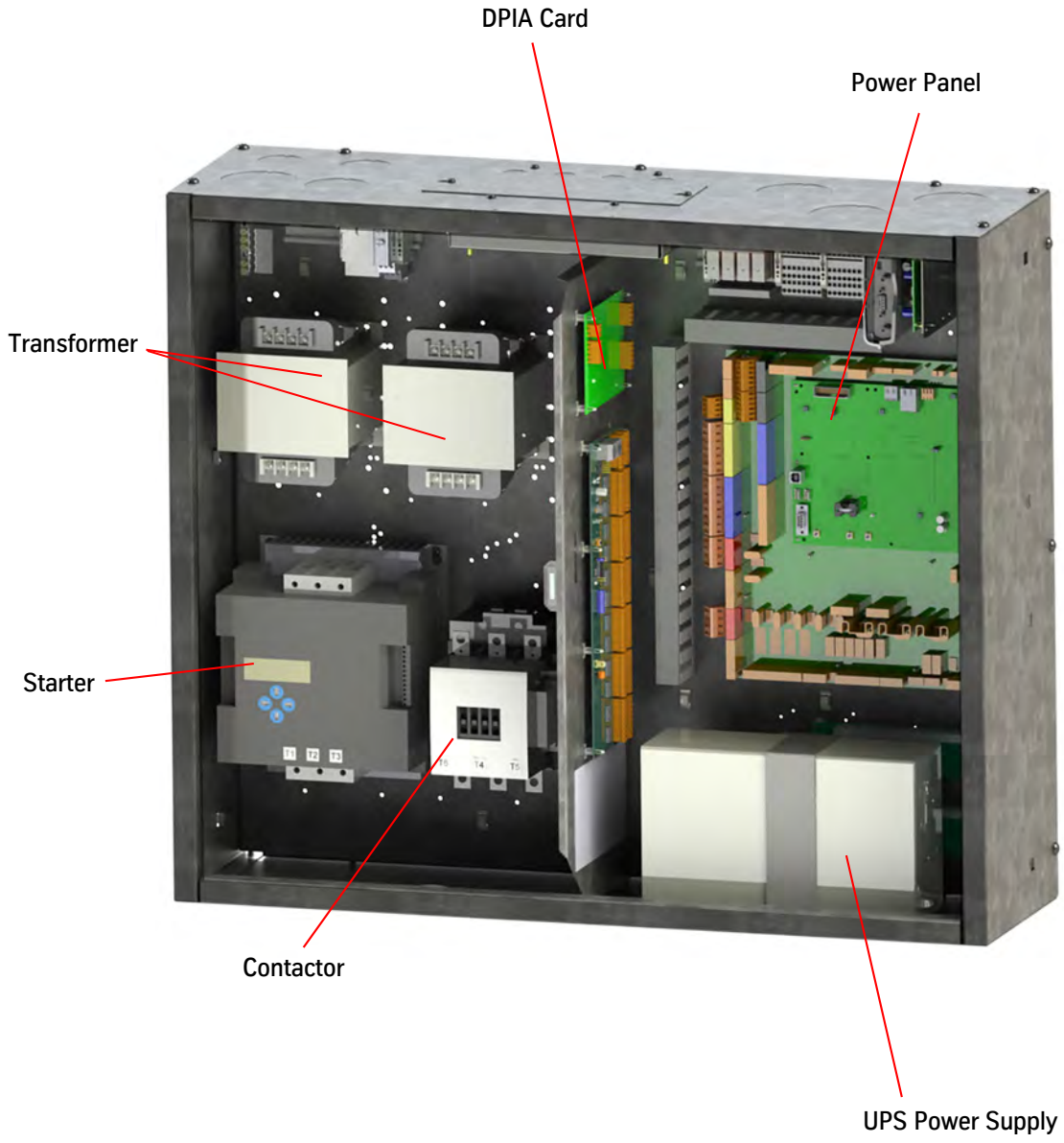
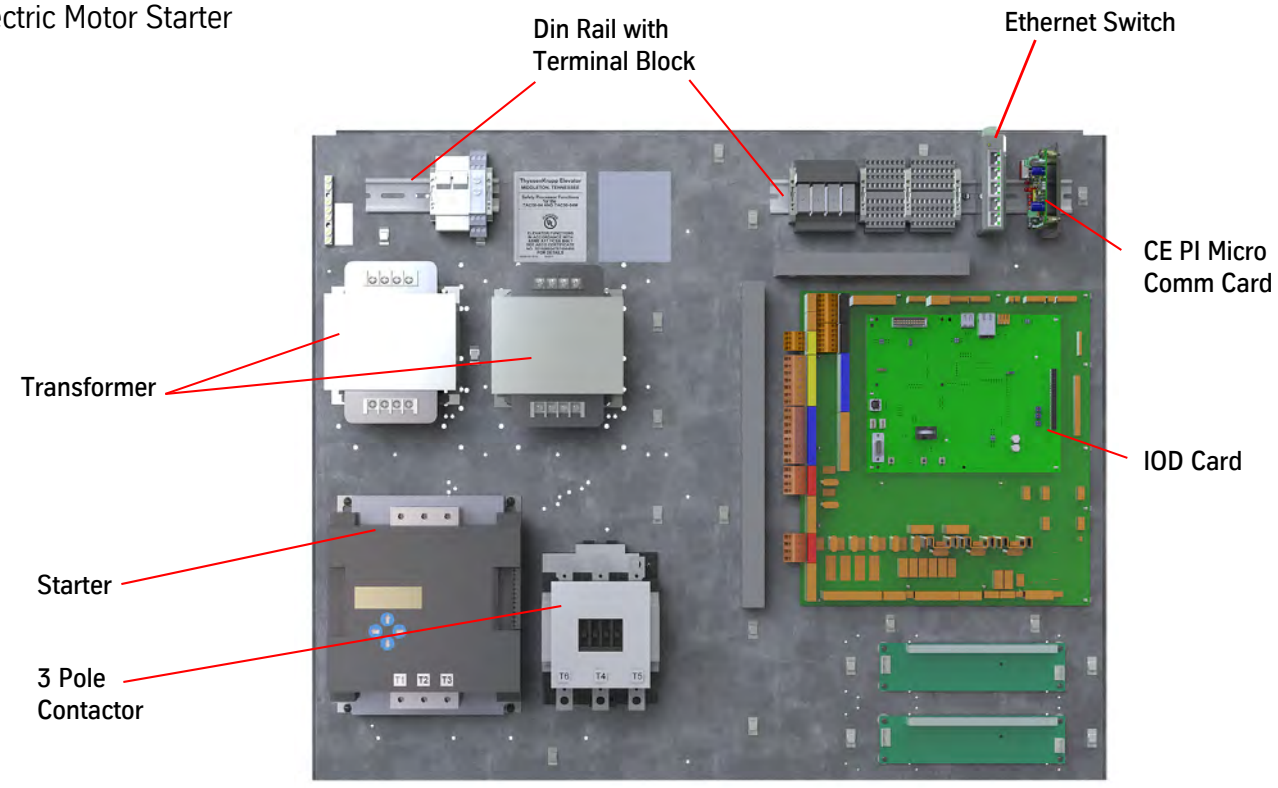
Replacement Parts

Controller Assembly (2102BB)

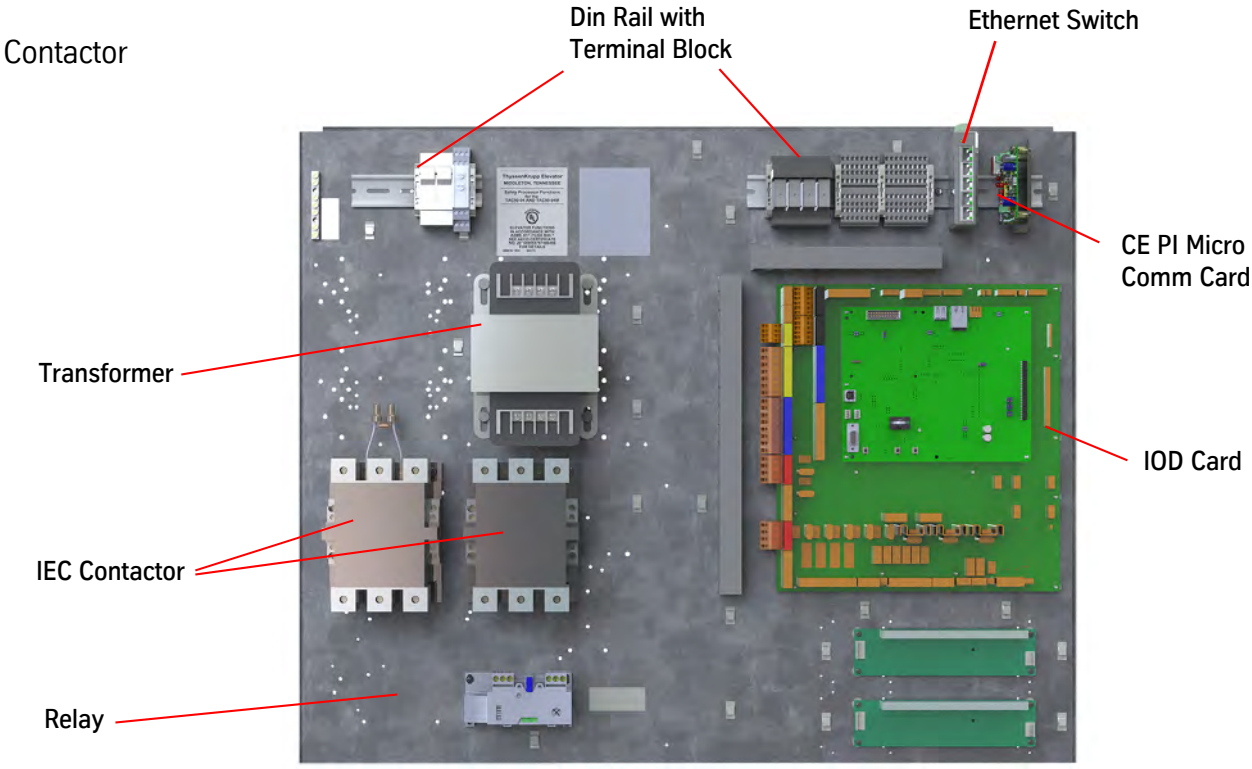


Power Panels

Electric Motor Starter

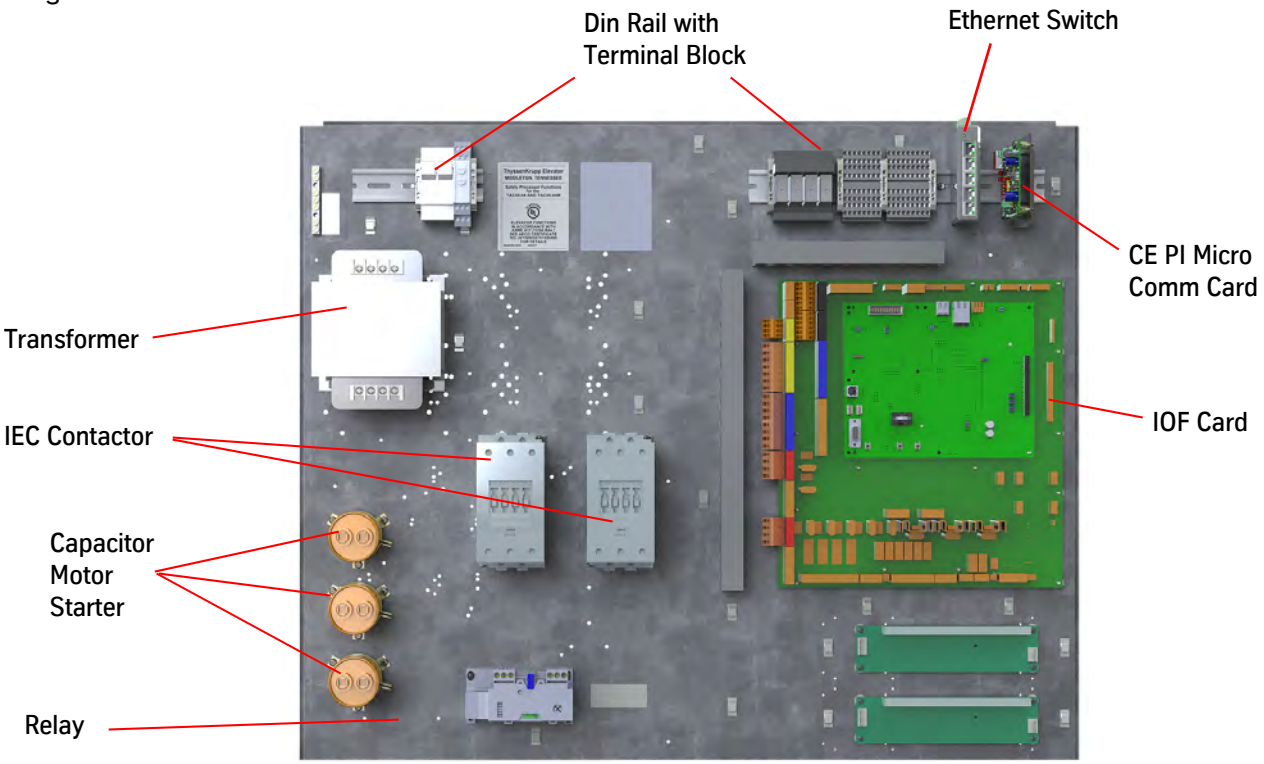


IEC Contactor



Power Panels
(continued)

Single Phase



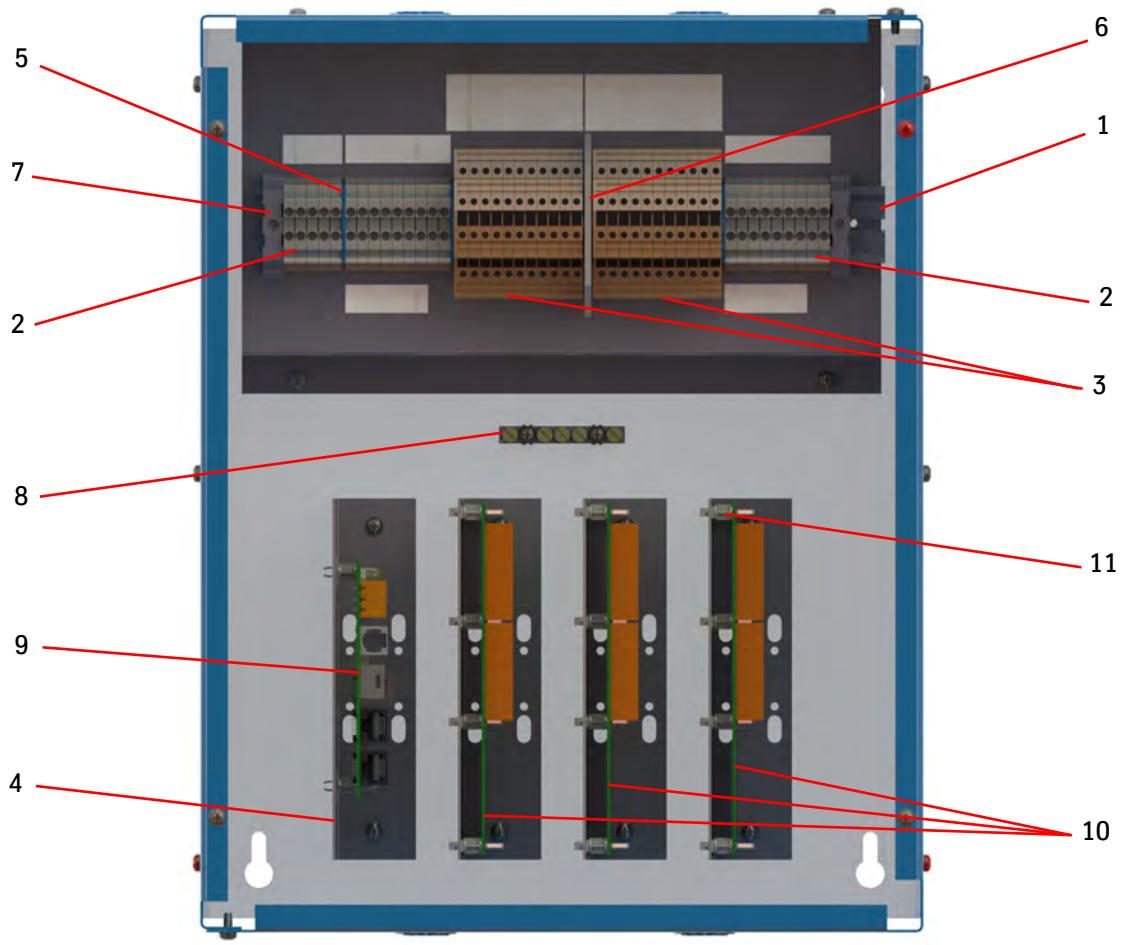
Controller Assembly (2102BB) - Replacement Parts List

For Replacement Cards, see Cards and Fuses on page 5-14.

Item	Print No.	Description
Contactor	298BB1	Relay Contactor, 3NO/1NC, 24VDC
	298AH49	3 Pole IEC Contactor, 78A
	298AH28	3 Pole IEC Contactor, 157A
	298AH31	3 Pole IEC Contactor, 252A
	298AR101	IEC Contactor
	298AR104	IEC Contactor
Starter	787AF1	Electronic Starter, 200-460V, 22A
	787AF10	Electronic Starter, 575V, 157A
	787AF11	Electronic Starter, 200-460V, 68A
	787AF12	Electronic Starter, 200-460V, 80A
	787AF13	Electronic Starter, 575V, 68A
	787AF2	Electronic Starter, 575V, 22A
	787AF3	Electronic Starter, 200-460V, 55A
	787AF4	Electronic Starter, 575V, 55A
	787AF5	Electronic Starter, 200-460V, 105A
	787AF6	Electronic Starter, 575V, 105A
	787AF7	Electronic Starter, 200-460V, 130A
	787AF8	Electronic Starter, 575V, 130A
	787AF9	Electronic Starter, 200-460V, 157A
	787AF14	Electronic Starter, 200-230V, 252A
Misc.	238CF2	Single Phase Capacitor, 60Uf
	370AJ13	P24GS Module
Fuseblock/ Fuse Panel	412BC1	Fuseblock DIN Rail, 1 Pole, $^{1}/_{4}$" x $1^{1}/_{4}$"
	412BD1	Fuseblock DIN Rail, End Plate
	412BE2	Fuseblock DIN Rail, 600V, 30A, 2 Pole
	412BE3	Fuseblock DIN Rail, 600V, 30A, 23 Pole
	409BP20	Fuse Panel, FNQ, 600V, 3A
	409BP23	Fuse Panel, FNQ, 600V, 4A
	409BP24	Fuse Panel, FNQ, 600V, 5A
	409BP25	Fuse Panel, FNQ, 600V, 6A
	409BP28	Fuse Panel, FNQ, 600V, 8A
	409BP30	Fuse Panel, FNQ, 600V, 10A
	409BP31	Fuse Panel, FNQ, 600V, 12A
	409CR200	Fuse, 600V, 0.2A
	409BR5	Fuse Panel, MDA, 1A
	409BR7	Fuse Panel, MDA, 2A
	409BR9	Fuse Panel, MDA, 3A
	409BR10	Fuse Panel, MDA, 4A
	409BR11	Fuse Panel, MDA, 5A
	409BR12	Fuse Panel, MDA, 6A
	409BR13	Fuse Panel, MDA, 7A
	409BR14	Fuse Panel, MDA, 8A
	409BR15	Fuse Panel, MDA, 10A

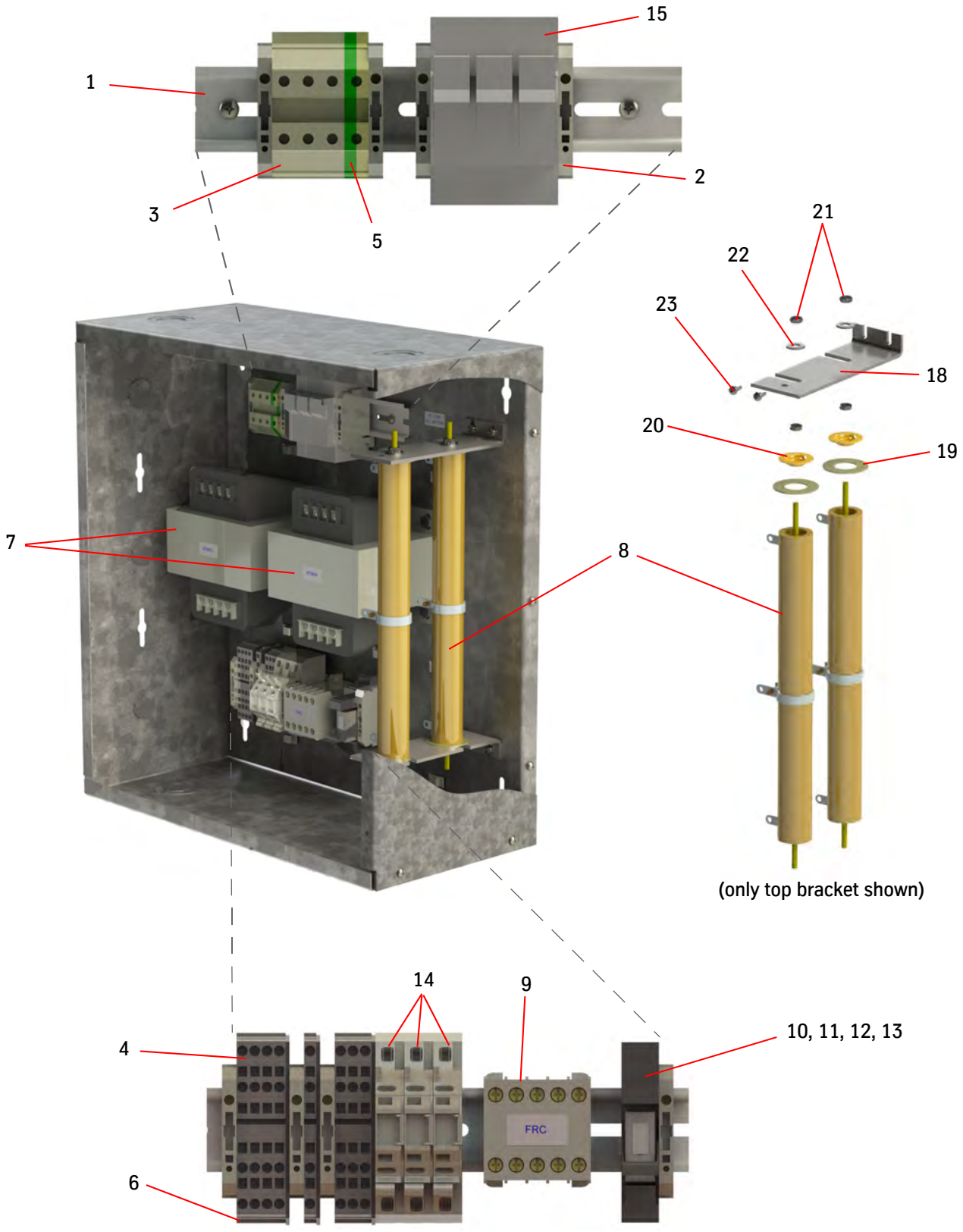
Item	Print No.	Description (cont.)
Relays	690BB10	Overload Relay, Curovl Series, 5.5-21A
	690BB11	Overload Relay, Curovl Series, 22-39A
	690BB12	Overload Relay, Curovl Series 48, 40-51A
	690BB13	Overload Relay, Curovl Series 48, 52-99A
	690BB14	Overload Relay, Curovl Series 48, 100-199A
	558AX2	Ejector Relay
	770BK2	Rail Mount Socket Relay, DPDT
	690CA3	DPDT PCB Relay, 6A, 24VDC
	690CA5	DPDT PCB Relay, 6A, 110VDC
	690CJ1	DPDT RT Series Relay, 115VAC
	200ALN1	Michigan 2000 Fire Service Kit
	804BC2	Socket Relay Suppressor, Diode DC
	804BF1	Relay Contactor Suppressor, Diode DC
	690AJ8	Reverse Phase Relay, 208-480VAC
	690AJ7	Reverse Phase Relay, 575VAC
Power Supply	672BW1	Power Supply, 24VDC, 50W
	672BX1	Power Supply, 24VDC, 100W
	672BY1	Power Supply, 24VDC, 150W
	672AY3	Power Supply, UPS, 115VAC, 60Hz, 500VA, 300W
Terminal Block	834CC9	Terminal Block Rail, 180°, Gray
	834AN7	Terminal Block Panel, $^{5}/_{16}$"
	834CF11	Terminal Block Rail, End Plate, Black
	834CG1	Terminal Block DIN Rail, End Bracket
	834DF1	Terminal Block Rail, 10mm, Green/Yellow with Ground
	834CX1	Terminal Block Rail Partition, Gray
	834DH1	Terminal Block Rail, 16mm, Green/Yellow with Ground
	834AP1	Terminal Block, Ground Lug
Transformers	874DA1	Transformer, PR 208V, SEC 115/115V, .5KVA, 1PH, 60Hz
	874DA2	Transformer, PR 240/240V, SEC 115/115V, .5KVA, 1PH, 60Hz
	874DA4	Transformer, PR 380/400/415V, SEC 115/115V, .5KVA, 1PH, 50/60Hz
	874DA5	Transformer, PR 600V, SEC 115/115V, .5KVA, 1PH, 60Hz
	874DA6	Transformer, PR 200/220V, SEC 115/115V, .5KVA, 1PH, 50Hz Only
	874DB1	Transformer, PR 208V, SEC 115/115V, .75KVA, 1PH, 60Hz
	874DB2	Transformer, PR 240/240V, SEC 115/115V, .750KVA, 1PH, 60Hz
	874DB3	Transformer, PR 600V, SEC 115/115V, .750KVA, 1PH, 60Hz
	874DC1	Transformer, PR 200/220V, SEC 115/115V, .750KVA, 1PH, 50/60Hz
	874DC3	Transformer, PR 380/400/415V, SEC 115/115V, .750KVA, 1PH., 50/60Hz
Misc.	200BWN001	ICON32 Front Inspection Station
	200BWN002	ICON32 Rear Inspection Station
	200BMR001	Selection Harness Extension
	196BMK001	Bracket Assembly, MicroComm Card

Freight Door Cabinet Assembly (2104AF)



ITEM	PRINT NO.	DESCRIPTION
1	684AD14	DIN Rail, 11" Long
2	834BX1	Terminal Block, DIN Rail, 5.2mm Wide
3	834CA1	Terminal Block, DIN Rail
4	196YF1	Terminal Bracket
5	834AF2	Terminal Block, DIN Rail End Section
6	834CD1	Terminal Block, DIN Rail Partition
7	834BW1	Terminal Block, DIN Rail Clamp
8	834AN5	Terminal Block, Panel, $^{5}/_{16}$", 5-Position
9	6300VV1	CAN Node (CN) Board
10	6300LN1	LON High Voltage I/O Board
11	786BH3	Standoff, Card, Non-Locking, $^{5}/_{32}$" X $^{3}/_{16}$" X $^{3}/_{8}$" Long
12	220DK500	Cable Assembly, Modular, CAT-5 8-8, 6" Long
	220DK1	Cable Assembly, Modular, CAT-5 8-8, 12" Long
13	200CCN001	CNA Freight Door Kit

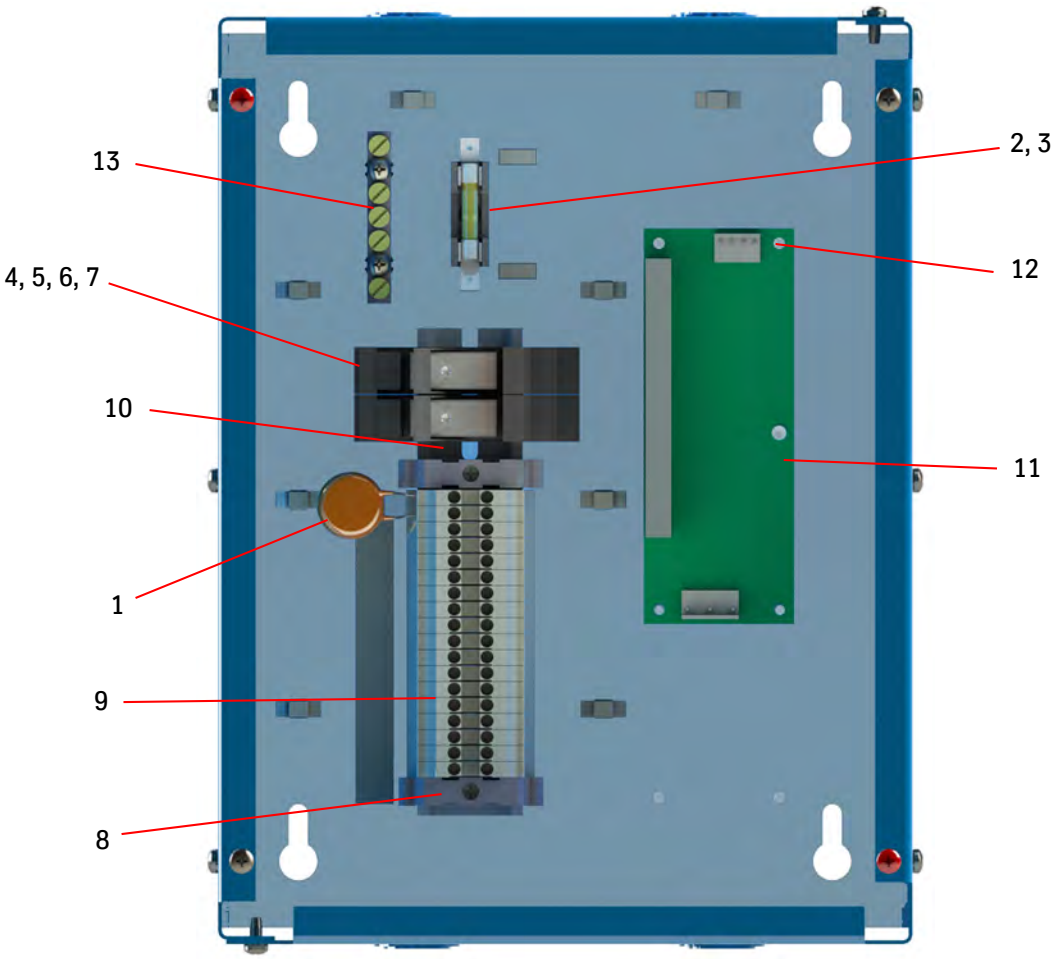
Manual Freight Door Cabinet Assembly (2104BL)



Manual Freight Door Cabinet Assembly (2104BL)
(continued)

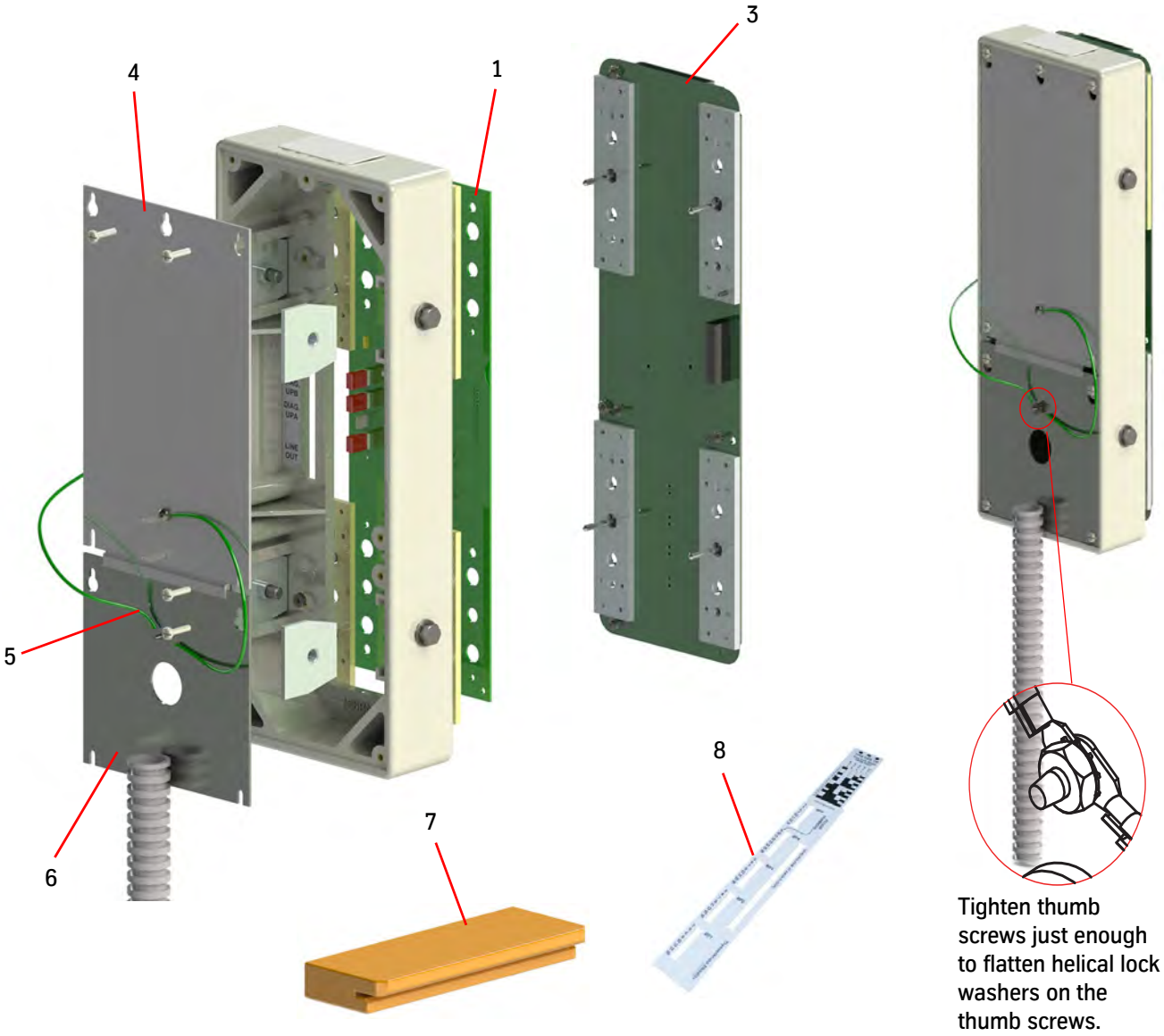
ITEM	PRINT NO.	DESCRIPTION
1	684AD9	DIN Rail, 7 7/16" Long
2	834CG1	Terminal Block, End Bracket
3	834DE1	Terminal Block, 180°, 10 mm Beige, Single Level
4	834CC9	Terminal Block, 180°, Gray
5	834DF1	Terminal Block, 180°, 10 mm, Green/Yellow
6	834CF11	Terminal Block, End Plate, Black
7	874DA1	Transformer, XFMR, PWR, 1PH, .5 KVA, 208V
	874DA5	Transformer, XFMR, PWR, 1PH, .5 KVA, 600V
	874DA2	Transformer, XFMR, PWR, 1PH, .5 KVA, 240/480V
8	128073	Adjustable Resistor, 200W, 150 Ohm
9	298BB1	Mini Contactor, 3 NO, 1 NC
10	804BC2	TVS Contactor
11	770BK2	Socket Rail Relay, DPDT
12	558AX2	Lever Relay Extraction Clip
13	690CA3	Power Relay, DPDT, 6A, 24VDC
14	412BC1	Fuse Block,1 Pole, 1/4" X 1 1/4"
15	412BE3	Fuse Block, 3 Pole, 600V, 30A
16	409BR7	Fuse, MDA 2A, 250V
	409BP16	Fuse, FNQ-R, 600V, 2A
	409BP20	Fuse, FNQ-R, 600V, 3A
	409BP23	Fuse, FNQ-R, 600V, 4A
17	221AB1	Push Mount Cable Tie
18	196ACD1	Resistor Bracket
19	75781	Mica Insulator Washer, 6017
20	75778	Center Washer, 6003
21	701032	FS, Nut, NHK 3/16" (#10)-24 Z
22	399AX3	FS, Washer, FWA 1/4" S (narrow)
23	101275	FS, Screw, SPTFS 3/16" (#8)-32 X 3/8" Z
24	200CCN001	CNA Freight Door Kit

Fire Service Cabinet (2104AE)



ITEM	PRINT NO.	DESCRIPTION
1	804BV1	TVS Assembly, MOV, 890AD1 Tubing
2	409BR7	Fuse Panel, MDA, 250V, 2A
3	412AN1	Fuse Block, 250V, 1 Position
4	804BC1	TVS RC Contactor, 110-230VAC
5	690CA3	Power Relay, DPDT, 6A, 24VDC
6	558AX2	Extraction Lever Relay
7	770BK1	Socket Relay
8	834BW1	Terminal Block, DIN Rail Clamp
9	834BX1	Terminal Block, DIN Rail, 5.2mm Wide
10	684AD10	DIN Rail, 6 $^{3}/_{4}$" Long
11	672BW1	Power Supply, 85-132VAC, 24VDC, 2.5A
12	786AX6	PCB Locking Standoff
13	834AN5	Terminal Block, Grounding, 5 Position
14	200CCN001	CNA Freight Door Kit

Selector Assembly (2105AG)

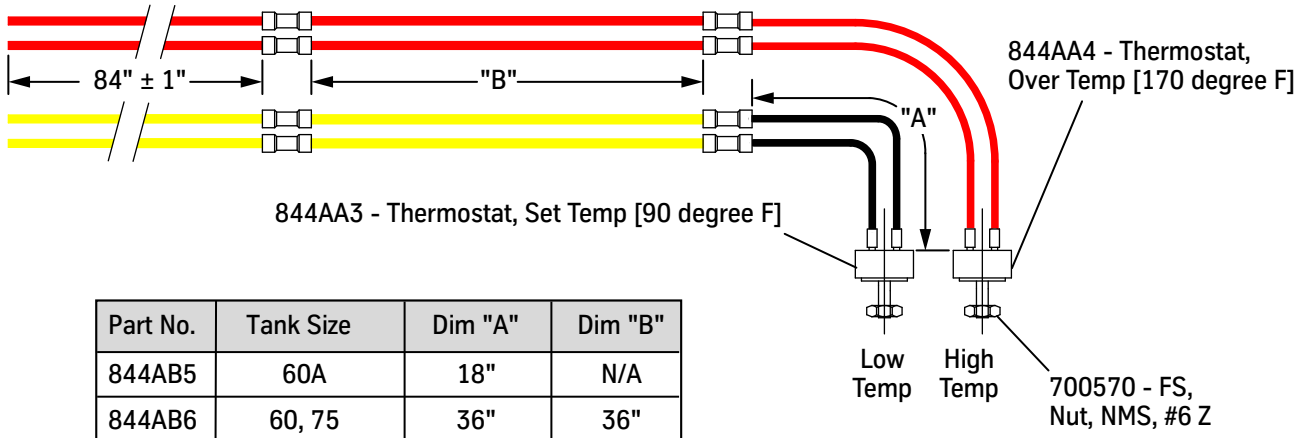


Tighten thumb screws just enough to flatten helical lock washers on the thumb screws.

ITEM	PRINT NO.	DESCRIPTION
1	6300ACK1	Tape Selector Main Sensor Board (TSMC), Canada
	6300ACK2	Tape Selector Main Sensor Board (TSMC), US
2	141549	Selector Tape Guide (not shown)
3	736CE001	Selector Auxiliary Sensor Assembly, TSAC
4	320GX1	Selector Box Cover
5	900AD60	14 Gauge Green Wire Assembly
6	462VC001	Standard Selector Harness, CAN-BUS
	462VC002	Extended Selector Harness, CAN-BUS
7	850PE1	Magnet Alignment Tool
8	814CH1	Floor Magnet Template

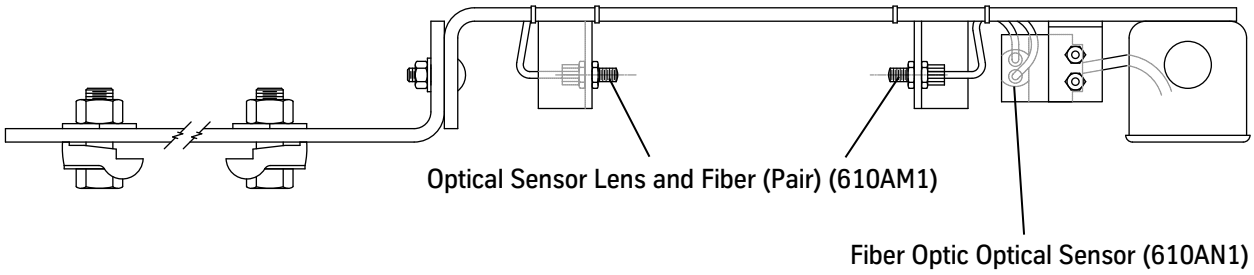
Replacement Sensors

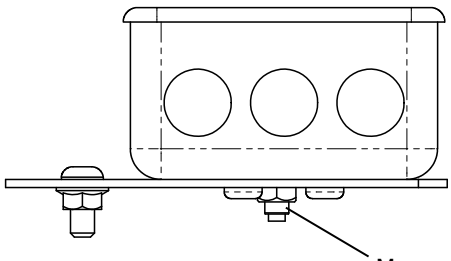
VISCOSITY CONTROL SENSORS



Part No.	Tank Size	Dim "A"	Dim "B"
844AB5	60A	18"	N/A
844AB6	60, 75	36"	36"
844AB7	106, 156, 180	8"	16"

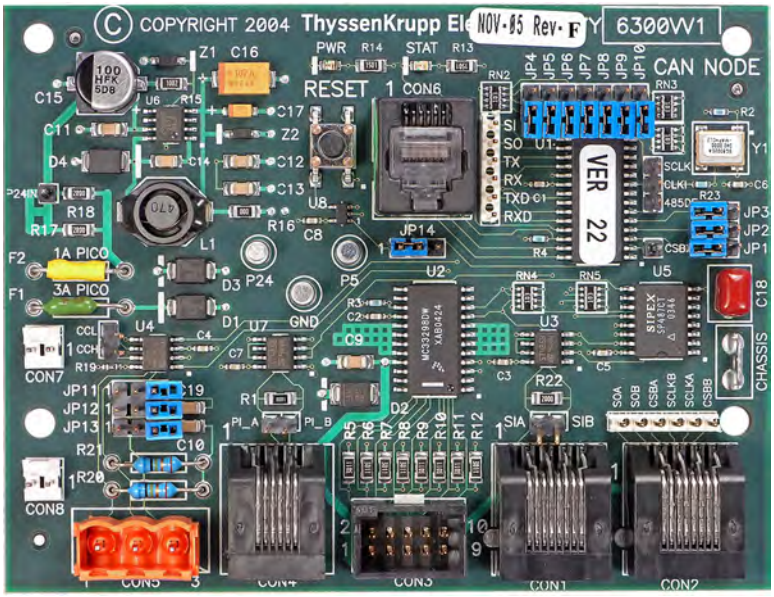
JACK SENSORS



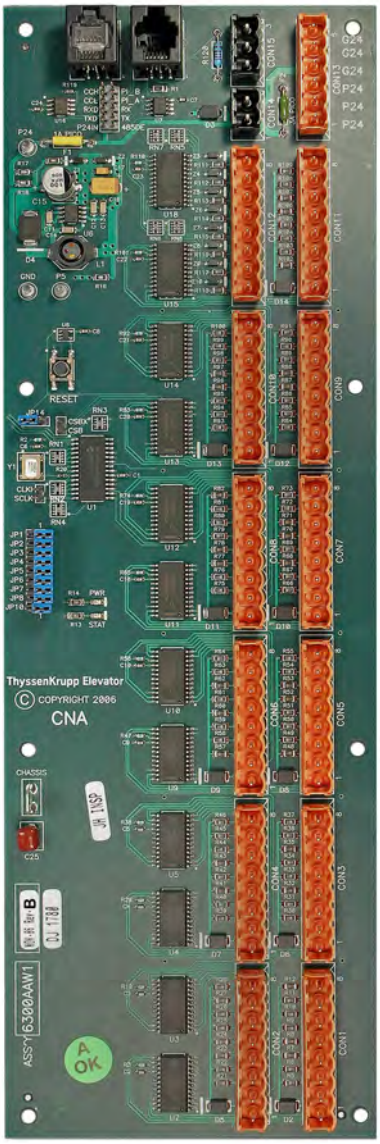


Cards and Fuses

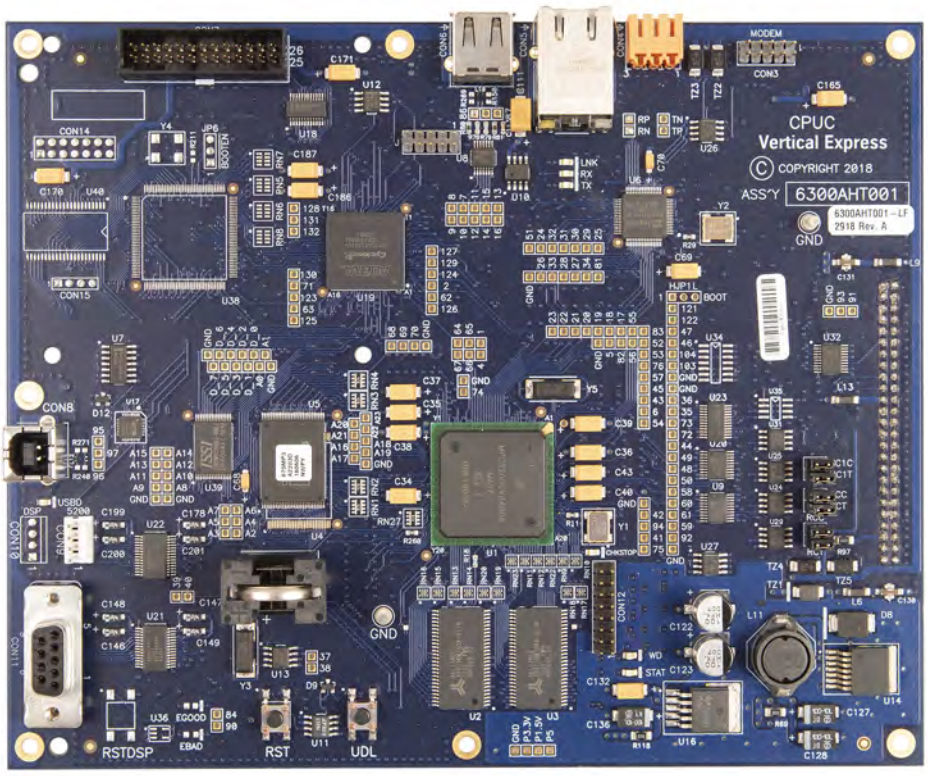
CN Card (6300VV)



CNA Card (6300AAW)

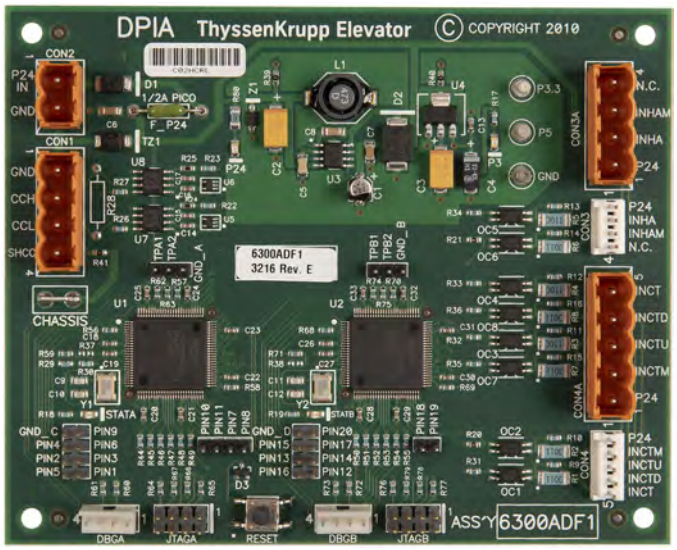


CPUC Card (6300AHT)

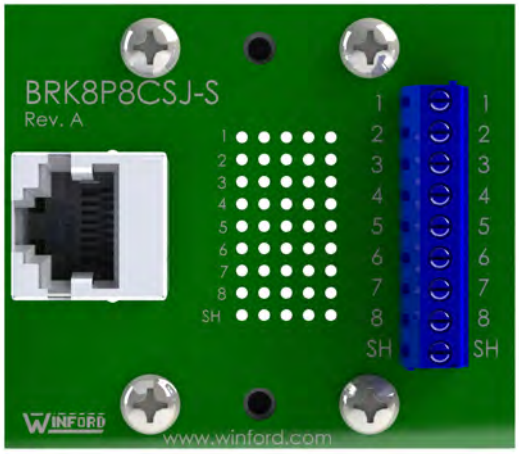


Cards and Fuses
(continued)

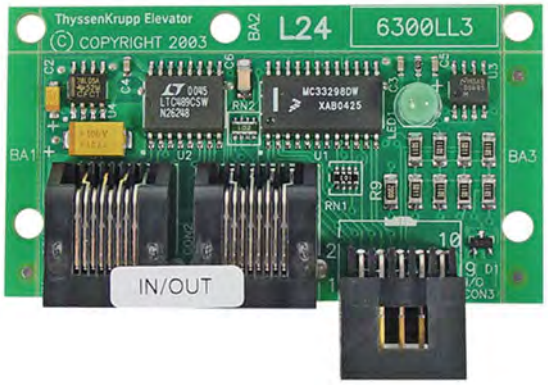
DPIA Card 6300ADF1



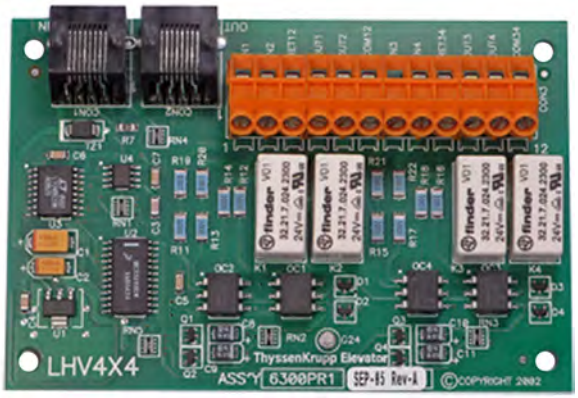
DIN Rail, RJ45 Shielded Jack Breakout Card (6300AJA)



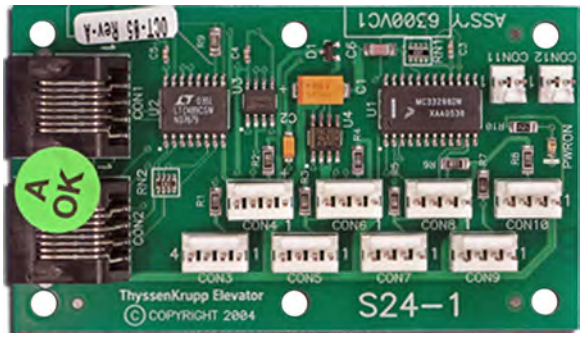
L24 Card (6300LL)



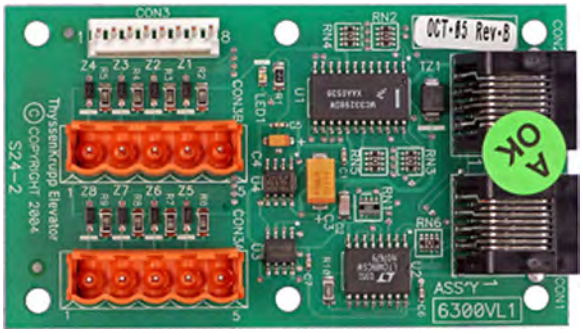
LHV 4X4 Card (6300PR)



S24-1 Card (6300VC)



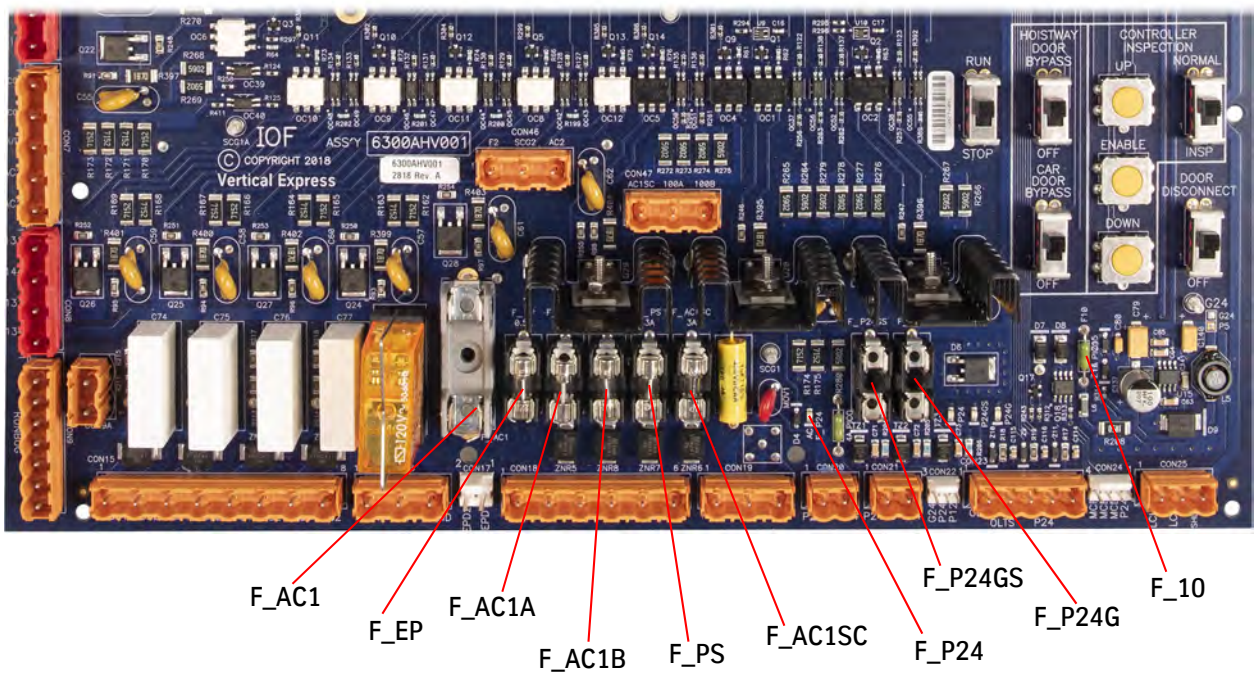
S24-2 Card (6300VL)



SERVICE INFORMATION

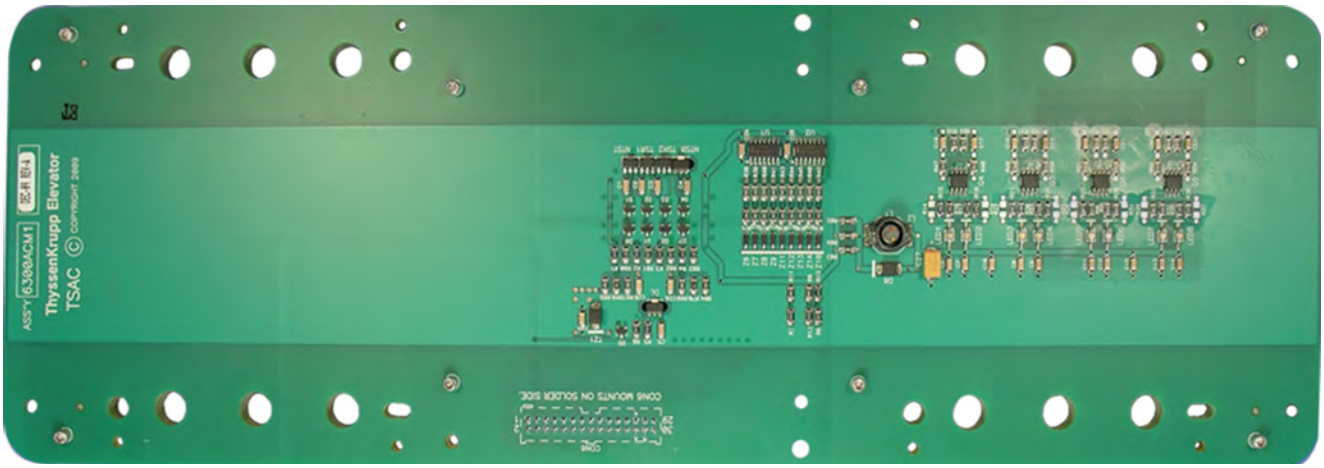
Cards and Fuses
(continued)

IOF Card (6300AHV001)



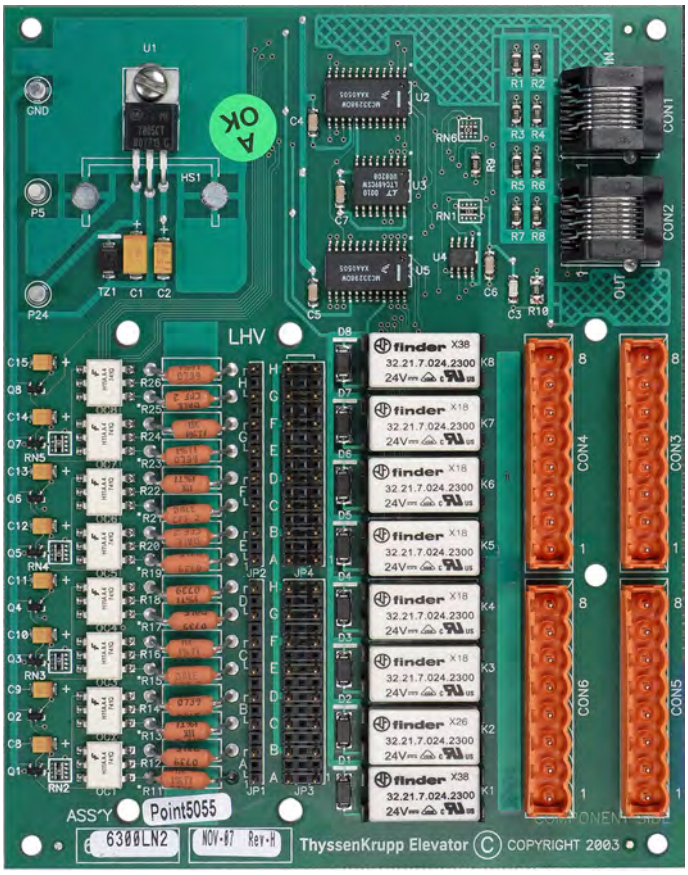
Print No.	Description	Designator
409CW3000*	Fuse Panel 2AG 250V Slow 3.0A	F_PS, F_P24GS, F_P24G
409CP3000	Fuse Panel 2AG 350V Fast 3.0A	F_AC1SC
409AE7	Fuse PCB PICO 125V 1A	F10
409AE9	Fuse PCB PICO 125V 2A	F_P24
409CW500*	Fuse Panel 2AG 125V Slow 0.50A	F_AC1B, F_EP
409CW1000*	Fuse Panel 2AG 250V Slow 1.0A	F_P24GS, F_P24G
409CW2000*	Fuse Panel 2AG 250V Slow 2.0A	F_P24GS, F_P24G
409CW4000*	Fuse Panel 2AG 250V Slow 4.0A	F_P24GS, F_P24G
409CW5000*	Fuse Panel 2AG 250V Slow 5.0A	F_P24GS, F_P24G
409CW6000*	Fuse Panel 2AG 250V Slow 6.0A	F_P24GS, F_P24G
*Included in 200BVG1 IOF Fuse Kit		

TSAC Card (6300ACM)

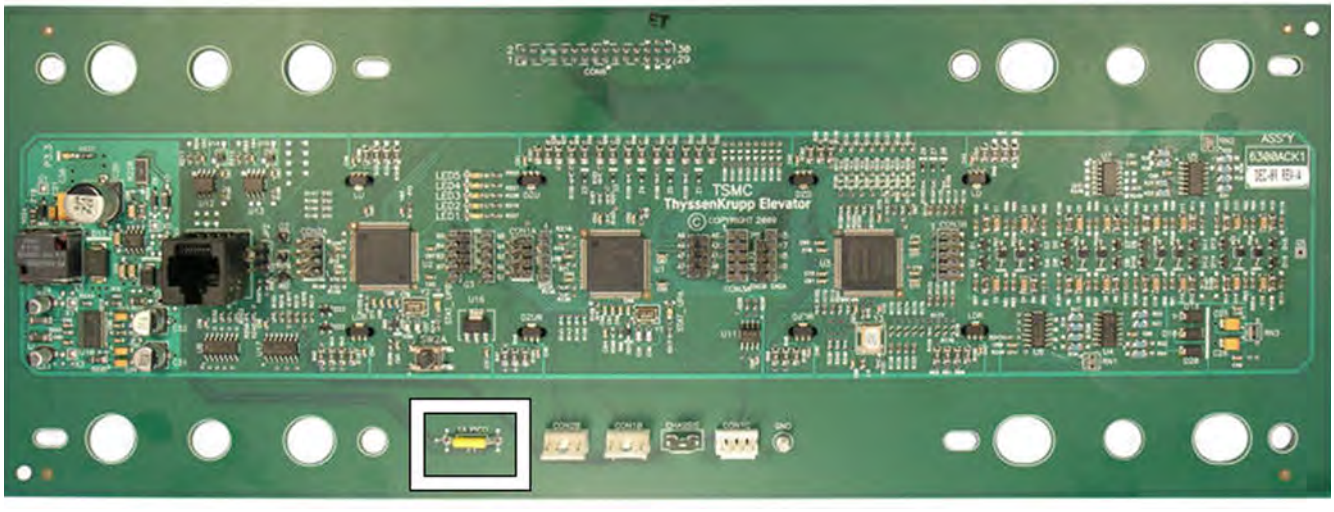


Cards and Fuses
(continued)

LHV Card (6300LN)



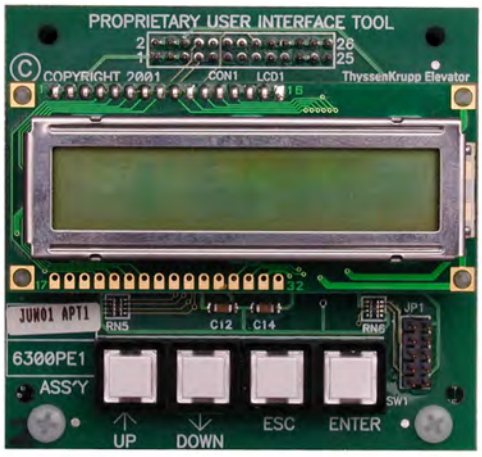
TSMC Card (6300ACK)



Print No.	Description	Designator
409AE7	PCB PICO 125V 1A	F1

Cards and Fuses
(continued)

User Interface Tool (6300PE1)
Must be ordered as an Owner's Service Tool (OST).

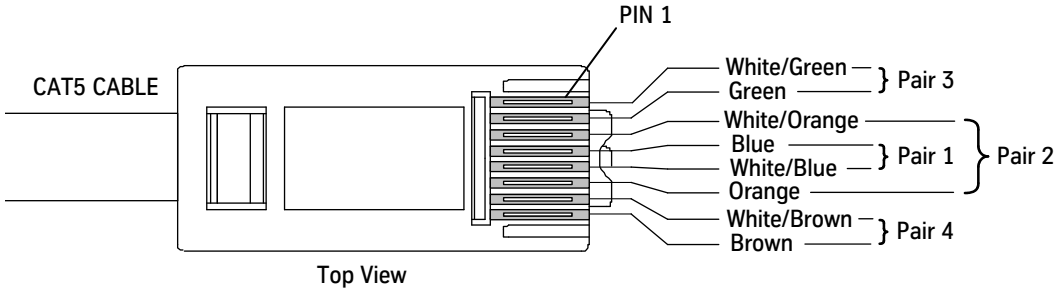


Requirements when replacing an OST (Owner's Service Tool)

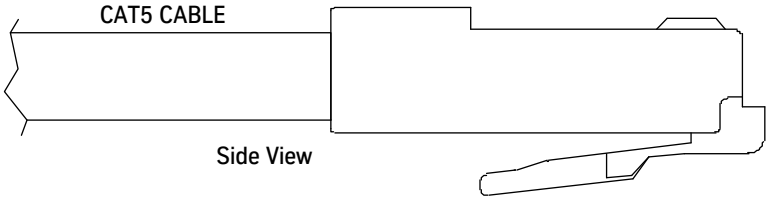
- Must use the specific job number when ordering a UIT Card (6300PE1) as a replacement.
- The job specific software is provided on a USB (518BG1) flash drive and ships with the new UIT.
- This replacement part is job specific, requiring engineering involvement, with a scheduled delivery time (not “on the shelf” for immediate delivery).
- After the replacement UIT and software is delivered, the controller must be completely readjusted.

Cable Information

Selector/SPI Loop Ethernet Cable



220DK_ RJ45 Connector

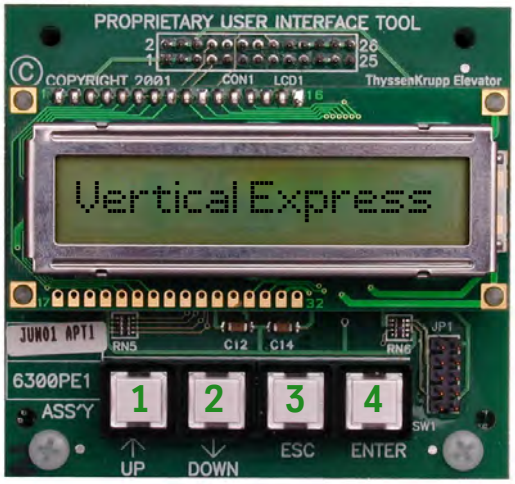


Replacement Part Numbers

Part No.	Print No.	Description
	200ATR1	CNA Plug Kit
	220CM1	Cable, 22 Ga., Twisted Shielded Pair
9730345	412BC1	DIN Rail Fuseblock, 1 Pole, $^{1}/_{4}$" x $1^{1}/_{4}$"
	412BD1	DIN Rail Fuseblock, End Plate
9782618	409BR5	1A MDA Fuse Panel
	462FT5	Power Supply Wiring Harness, 18 Ga.
	462FV2	Power Supply Wiring Harness, 20 Ga.
	545AF2	2 Position Terminal Jumper
9725638	661BA3	1 x 3 Terminal Plug/M Connector, 90° 5.08mm
	672BW1	Power Supply, 50W, 24VDC
9666677	834CC9	Terminal Block Rail, 180°, Gray
	834CE1	Terminal Block Rail, 180°, Green/Yellow Ground
	834CF11	Terminal Block Rail End Plate, Black
	834CG1	Terminal Block Rail End Bracket
	900DX1	18 Ga. 2-Conductor Twisted Wire Assy. (White/Black Stripe, Black)
	900DX2	18 Ga. 2-Conductor Twisted Wire Assy. (White/Red Stripe, Red)
9768130	76813	Nylon Standoff

Controller User Interface Tool (UIT)

The User Interface Tool (UIT) is an embedded diagnostics and service tool that allows a qualified mechanic to commission and troubleshoot an ICON32 Controller.



The numbers on the buttons above are for illustration and are not printed on the actual UIT.

Figure 1 - UIT Main Menu Screen

Primary Menus

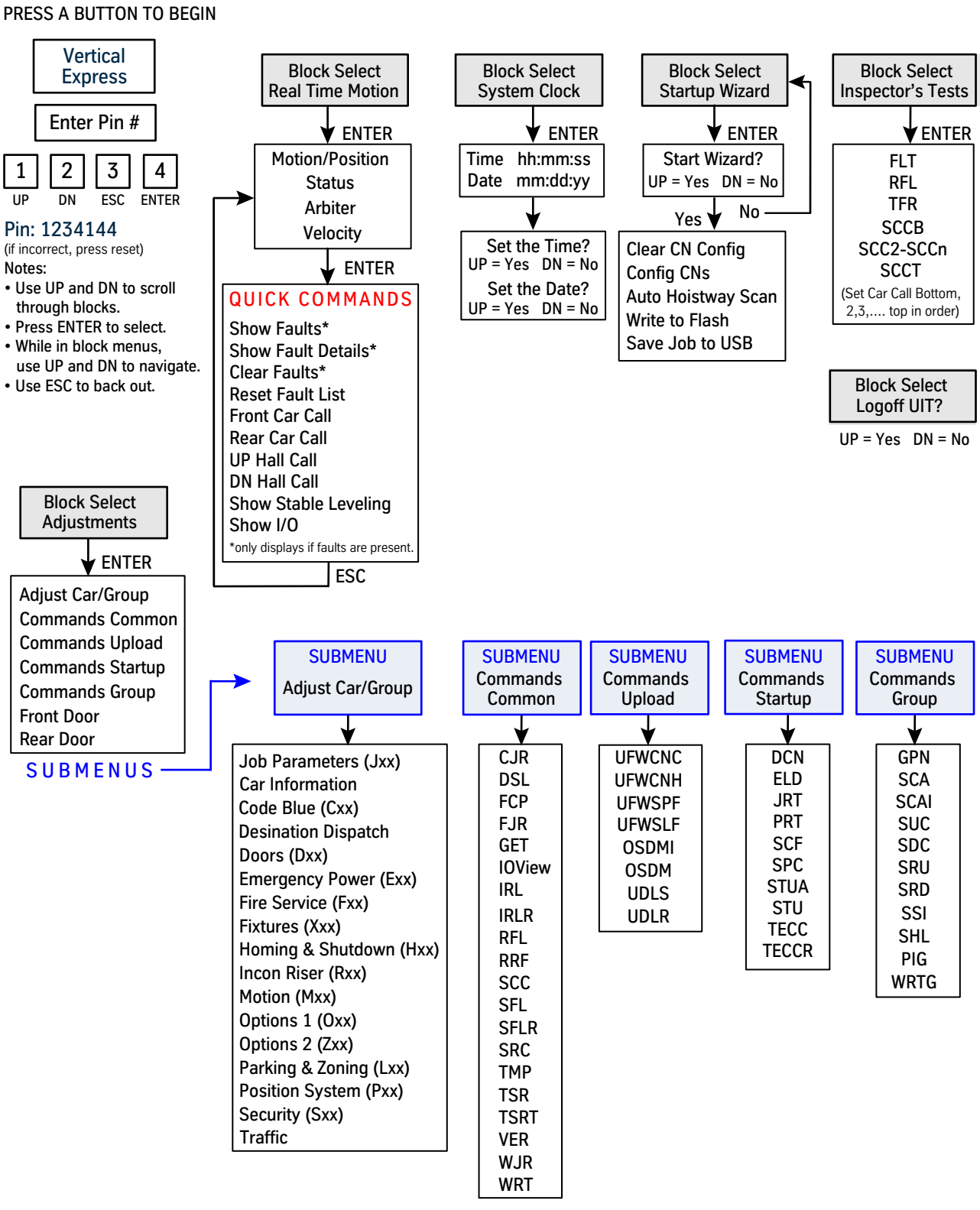
Block Select Adjustments	Block Select Real-Time Motion	Block Select System Clock	Block Select Startup Wizard	Block Select Inspector Tests	Block Select Log-Off UIT?

- Press **UP** or **DOWN** to navigate through the menu blocks.
- Press **ENTER** to go forward.
- Press **ESC** to go back.
- For a list of the submenus, see the UIT Menu Tree starting on page 5-21.

Access the UIT

1. Press **ENTER**.
2. Press any button while **Vertical Express** is displayed in the UIT window, and enter the pin number - 1234144. See Figure 1 (above). If the wrong pin number is entered, continue to press **UP** until **Vertical Express** appears in the window, then enter the pin number again.
3. Navigate to the desired Block Select Menu, and press **ENTER**.

UIT Menu Tree



CAN Node Configuration via the Startup Wizard

The Startup Wizard will setup and configure all CAN nodes, execute a hoistway scan, and save parameter changes.

CAN Nodes

Before using the Startup Wizard, the door operator and safety system nodes must be installed and completely wired to the cards (CNA, Selector, DPIA, CNs, etc.). When the correct termination scheme is used, CAN channels 2 (and 3 when required) should measure 60 ohms +/- 3 ohms, with power removed and all connections made.

Configure the CAN System

1. Access the UIT.
2. Access the Startup Wizard.
   a. Press **UP** or **DOWN** until **Block Select Startup Wizard** displays, and then press **ENTER**.
   b. When **Start Wizard?** displays, press **UP**.
3. Issue the Teach Command.
   a. When **Teach Front CN?** displays,
      - For Front Riser - press **ENTER**, and press **ENTER** again.
      - No Front Riser - press **UP**.
   b. When **Teach Rear CN?** displays,
      - For Rear Riser - press **ENTER**, and press **ENTER** again.
      - No Rear Riser - press **UP**.
4. Configure the CNs.
   a. When **Config CN** displays, press **ENTER**.
   b. When **Completed Config** displays, press **ENTER**.
5. Skip Automatic Hoistway Scan. When **Auto Hoistway Scan?** displays, press **UP**.
6. Save the parameters.
   a. When **Write to Flash** displays, press **ENTER**.
   b. When **Write Complete** displays, press **ESC**.

Command Sequence

To properly configure the CAN Nodes, issue these commands in the order written: TECCR, TECC.

TECCR The TECCR Command resets all online CAN nodes' configuration. See Figure 2.

Figure 2 - TECCR Command

TECC The TECC Command configures all online CAN nodes. See Figure 3.

CAN resistive loading will affect the configuration. Before issuing a TECC Command, check the loading for Channel 2 or Channel 3 (if used).

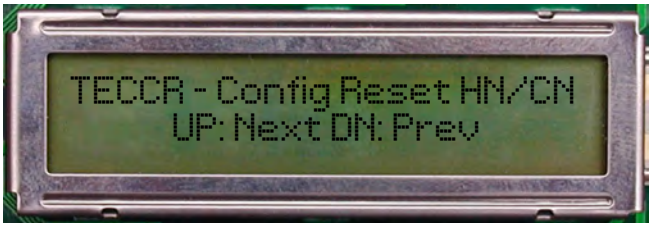


Figure 3 - TECC Command (appears after TECCR > ENTER)

DCN The DCN Command displays the status of all CN Cards, and has the ability to ping specific ports to verify operation. See Figure 4 on page 5-24.

- The status of the CAN Node Cards located on either Channel 2 or Channel 3.
- Specific CN data:
  - Communication status
  - Node ID
  - Number of ports assigned
  - Specific ports assigned

Executing a DCN Command prompts the user to enter specific parameters; the requested data appears in the UIT window. If a line is scrolling, press **UP** to pause the screen, and then press **UP** to resume scrolling.

Command Sequence
(continued)

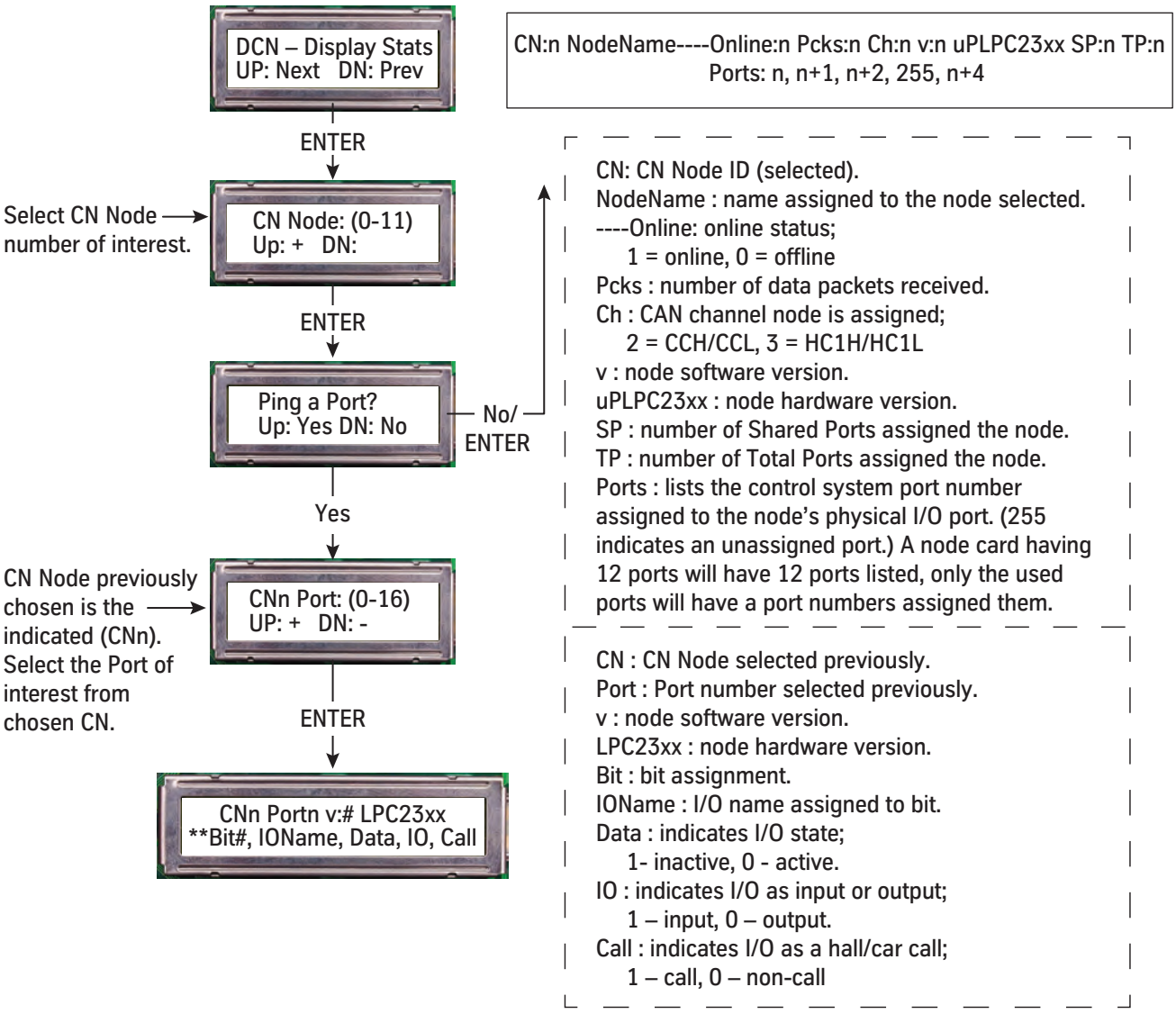


Figure 4 - DCN Command and Menu Tree

Card Changing Procedures

Door Card

See the appropriate door operator manual.

CAN Node Card

1. Remove the car from service.
2. Turn OFF, Lockout, and Tagout the mainline disconnect.
3. Note the connector locations, and then remove all connectors from the old card.
4. Note the jumper positions and socketed resistor configurations, and then remove the old card.
5. Place jumpers and resistor configurations in same positions as on the old card.
6. Install the replacement card.
7. Install all wires and connectors on the new card.
8. Turn ON the mainline disconnect.
9. Log into the UIT using the PIN number (1234144).
10. Navigate to ADJUSTMENTS BLOCK > COMMANDS STARTUP.
11. Issue a TECC Command.
12. To confirm communication and port assignments, issue a DCN Command.
13. Verify proper operation, and return the car to service.

L24, S24-1, S24-2, LHV, LHV 4x4 Cards

These cards have no software and can be used where needed. Ensure that the cables are correctly marked so they may be correctly reconnected after replacing the suspected failed card.

1. Remove the car from service.
2. Turn OFF, Lockout, and Tagout the mainline disconnect.
3. Note locations, and remove all connectors from the I/O Cards.
4. Install the replacement card.
5. Install all wires and connectors on the new card.
6. Turn ON the mainline disconnect.
7. Verify proper operation, and return the car to service.

Card Changing Procedures
(continued)

TSMC/TSAC Card

1. Position the car to easily access the car top, if possible.
2. Remove the car from service.
3. Turn OFF, Lockout, and Tagout the mainline disconnect.
4. Access the car top.
5. Disassemble the selector. See the Selector Assembly (2105AG) on page 5-12.
6. Replace the TSMC/TSAC Card, and reassemble the selector.
7. Restore power to the controller.
8. Log into the UIT using the PIN number (1234144).
9. Navigate to STARTUP WIZARD BLOCK.
10. Place the car on Automatic Service.
11. Activate the Door Disconnect Switch on the IOF Card.
12. Press **UP** until **Auto Hoistway Scan?** appears, and then press **ENTER**.

IOF Card Changing Procedure

Download Existing Files from the CPUC and Remove Old Cards

1. Place the controller on Inspection Operation.
2. Insert the manufacturing-supplied USB flash drive into the USB Host Port (CON6 on the existing CPUC Card). Most USB flash drives may be used, if they are properly formatted and have the correct file folder structure. See USB Flash Drive Preparation on page 5-34.

CAUTION

Transferring software between the CPUC and USB flash drives requires a few minutes to complete. Resetting the card during this time could result in corrupting the USB and the CPUC.

3. Issue a UDLS Command.This process will backup image and generic software files from the CPUC to the USB flash drive.

   Controller UIT: Block Select Adjustments > Commands Upload > UDLS.

4. Remove the USB flash drive from the CPUC.
5. Turn OFF, Lockout, and Tagout the mainline disconnect.

IOF Card
(continued)

6. Disconnect CON40. This process removes the P24XC feed from other controllers in the group. See Figure 5 on page 5-28 for the remaining steps in this section.

7. Verify that the following LEDs are not illuminated:
   - P24.
   - P24G.
   - P24GS.
   - AC (located in the bottom right half of the IOF).

8. Verify that the P24GS PSM (located on the DIN rail above the IOF) is not illuminated.

9. Detach all connectors from the IOF and CPUC Cards.

10. Remove the CPUC Card from the plastic standoffs of the IOF Card, and place the CPUC Card on a static-free surface.

11. Remove the IOF Card from the controller cabinet, and place the IOF Card on a static-free surface.

Transfer and Install New Cards

1. Transfer the following items from the old card to the new card.
   - Plastic Standoffs.
   - CON9A.
   - Jumpers JP2 and JP3 (in 2-3 positions).
   - Any fuses including, but not limited to, F-AC1.
     – Use the job prints to verify that all necessary fuses are populated with the correct size and fuse type.
     – F-P24GS on the IOF Card is not used, a PSM is located on the DIN rail above the IOF Card to supply voltage.

2. Install the CPUC Card onto the IOF Card. Take care not to bend pins that join the CPUC and the IOF Cards together. The pins are located at CON1, CPUC Card.

3. Place the combined cards in the controller cabinet.

4. Replace all connectors except CON40, CON1, CON12, and CON11 on IOF Card.

5. Where Ethernet communication is used, leave the Ethernet cable disconnected from CON5 on the CPUC Card.

6. Verify that the controller inspection switch is in the INSP position.

IOF Card
(continued)

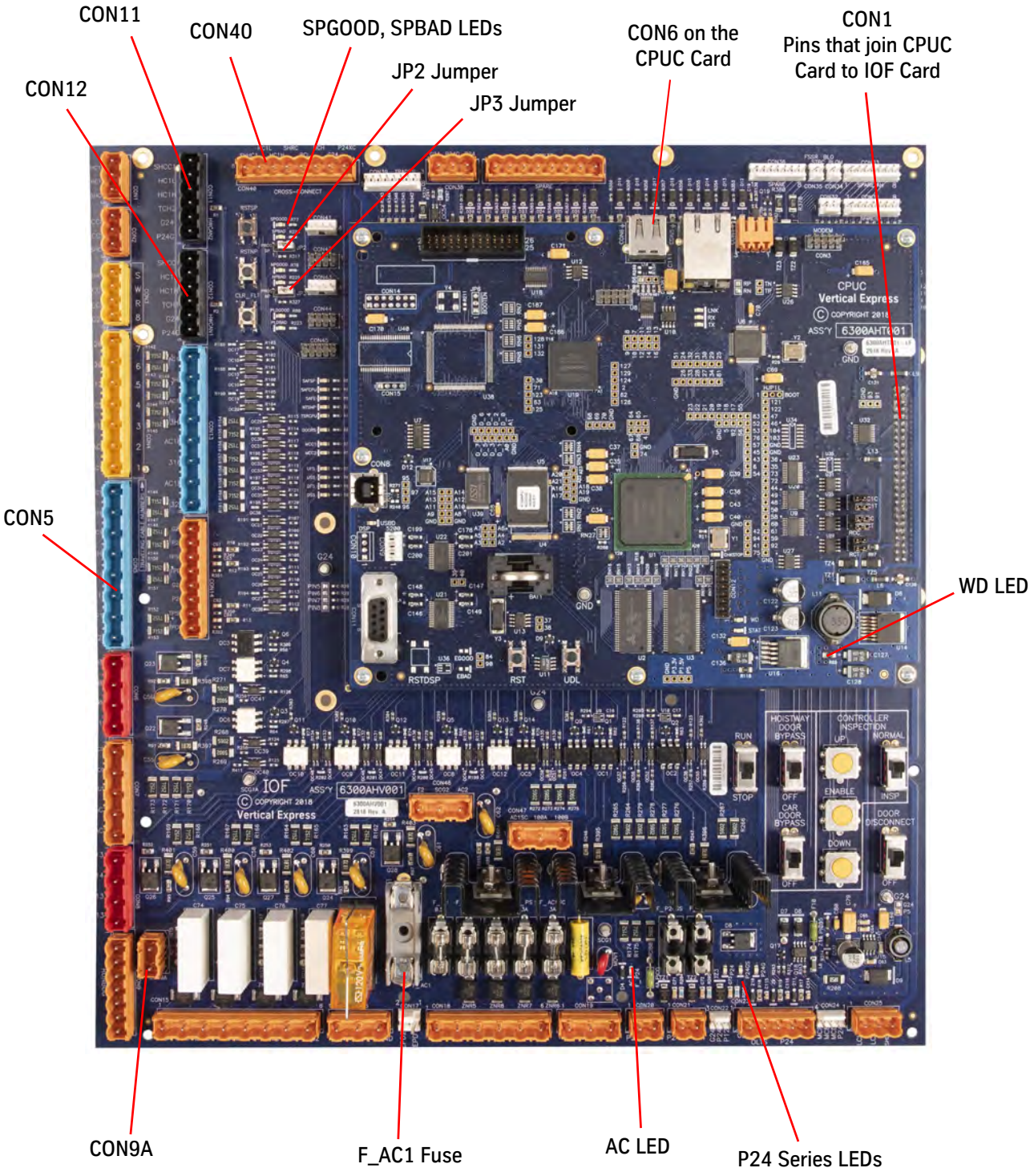


Figure 5 - IOF Card with CPUC Card

CPU Replacement

Back Up the Job Software

1. Place the controller on Inspection Operation.
2. Insert the manufacturing-supplied USB flash drive into the USB Host Port (CON6 on the existing CPUC Card). Most USB flash drives may be used, if they are properly formatted and have the correct file folder structure. See USB Flash Drive Preparation on page 5-34.

CAUTION

Transferring software between the CPUC and USB flash drives requires a few minutes to complete. Resetting the card during this time could result in corrupting the USB and the CPUC.

3. Issue a UDLS Command. This process will backup the generic and job configuration files to the USB flash drive.
   Controller UIT: Block Select Adjustments > Commands Upload > UDLS.

Replace the CPUC Card

1. Turn OFF, Lockout, and Tagout the mainline disconnect.
2. Unplug CON40 from the IOF Card.
3. Unplug the Ethernet cable (if used) from CON5 of the CPUC Card.
4. Set jumper positions on the replacement CPUC Card to match the faulty CPUC Card.
5. Confirm that all LEDs on the IOF Card are not illuminated.
6. Carefully uninstall the faulty CPUC Card. Take care not to bend the pins that join the CPUC to the IOF Card, CON1 of the CPUC Card.
7. Remove the UIT and standoffs from the faulty CPUC Card.

NOTE

The UIT Card is bound to the specific job configuration (software) for the job. The UIT Card will not permit the adjustment of any other job.

During replacement:

- Do Not Swap UIT Cards between controllers/CPU Cards.
- Remove the UIT Card from the failed CPUC Card.

8. Install the UIT and standoffs on the replacement CPUC Card.
9. Carefully install the replacement CPUC Card onto the IOF Card. Before applying pressure, ensure that CON1 of the CPUC properly aligns with the IOF Card's mating pins.

CPU Replacement
(continued)

10. For jobs where the Hall CAN channel is being used, remove CON1, CON12, and CON11 on the IOF Card.

11. Where Ethernet communication is used, leave the Ethernet cable disconnected from CON5 on the CPUC Card.

12. Use the USB with the job's backup files (from the UDLS earlier), and copy the backup files into the update folder of drive. See USB Flash Drive Preparation on page 5-34.

13. Restore the mainline power.

14. Install the USB flash drive (used earlier) into CON6 on the CPUC Card.

15. Press **RST** on the CPUC Card.

16. Release **RST**.

17. Press and hold **UDL** until the STAT LED blinks Morse Code `Z' (two long and two short blinks). When complete, the STAT LED blinks 3 times before CPUC Card resets itself.

If the upload takes longer than 15 minutes, or if the STAT LED blinks every 100ms continuously, the upload has failed. Cycle power to the controller and then remove the USB from the CPUC Card. See Upload Software Troubleshooting on page 5-37.

18. After the upload is successful, verify that the controller will run from Inspection Operation. Should the car fail to run, troubleshoot fault codes and I/O states to determine the issue. See Troubleshooting I/O Issues on page 4-13.

19. Place the door disconnect switch in the Door Disconnect position.

20. Place the inspection switch in the Normal position.

21. Use Quick Commands, and issue car calls to verify Automatic Operation. This action verifies the hoistway scan. If the car will not run on Automatic Operation, perform a new hoistway scan.

    Block Select Real Time Motion > Quick Commands > Front Car Call/Rear Car Call.

22. Reconnect CON40, CON1, CON11, and CON12 on the IOF Card.

23. Reconnect the Ethernet cable (if used) to CON5 on the CPUC Card.

24. Verify group service operation.

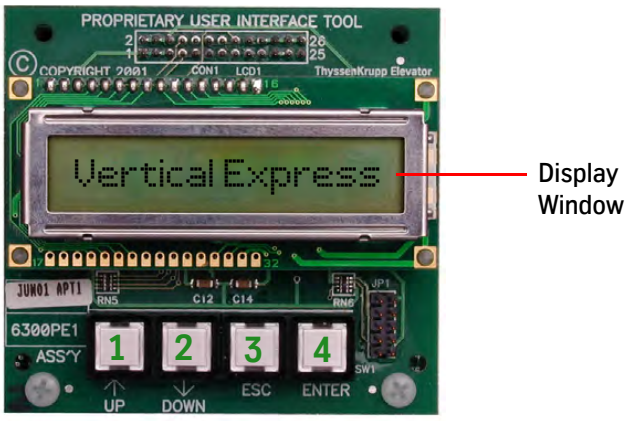
Software Management

Software Version Confirmation

How to determine which versions of software are running in the control system which determine how the control system functions.

1. Verify that the Controller Inspection Switch in on INSP.
2. Press any button while **Vertical Express** is displayed in the UIT window, and enter the pin number - 1234144. See Figure 6.

NOTE If the wrong pin number is entered, continue to press **UP** until **Vertical Express** appears in the display window, then enter the pin number again.



The numbers on the buttons above are for illustration and are not printed on the actual UIT.

Figure 6 - UIT Main Menu Screen

3. Issue a VER Command.
   a. When **BLOCK SELECT ADJUSTMENTS** displays, press **ENTER**.

   b. Press **UP** until **ADJUST MENU COMMANDS COMMON** displays.

Software Verification Procedure
(continued)

c. Press **UP** until **VER** displays, press **ENTER**, and window displays this data:

v = version
x = version number
r = revision
y = revision number

Each of the safety nodes have two safety processors. Both processors should display the same version of software.

IMPORTANT!

This controller contains software that is under AECO A17.7 Control. When replacing boards or functions involving this controlled software, verify that the replacement or updated software is the same version listed on the 580AMY marker attached to the controller.

4. Fill out the following chart, and note the software version.

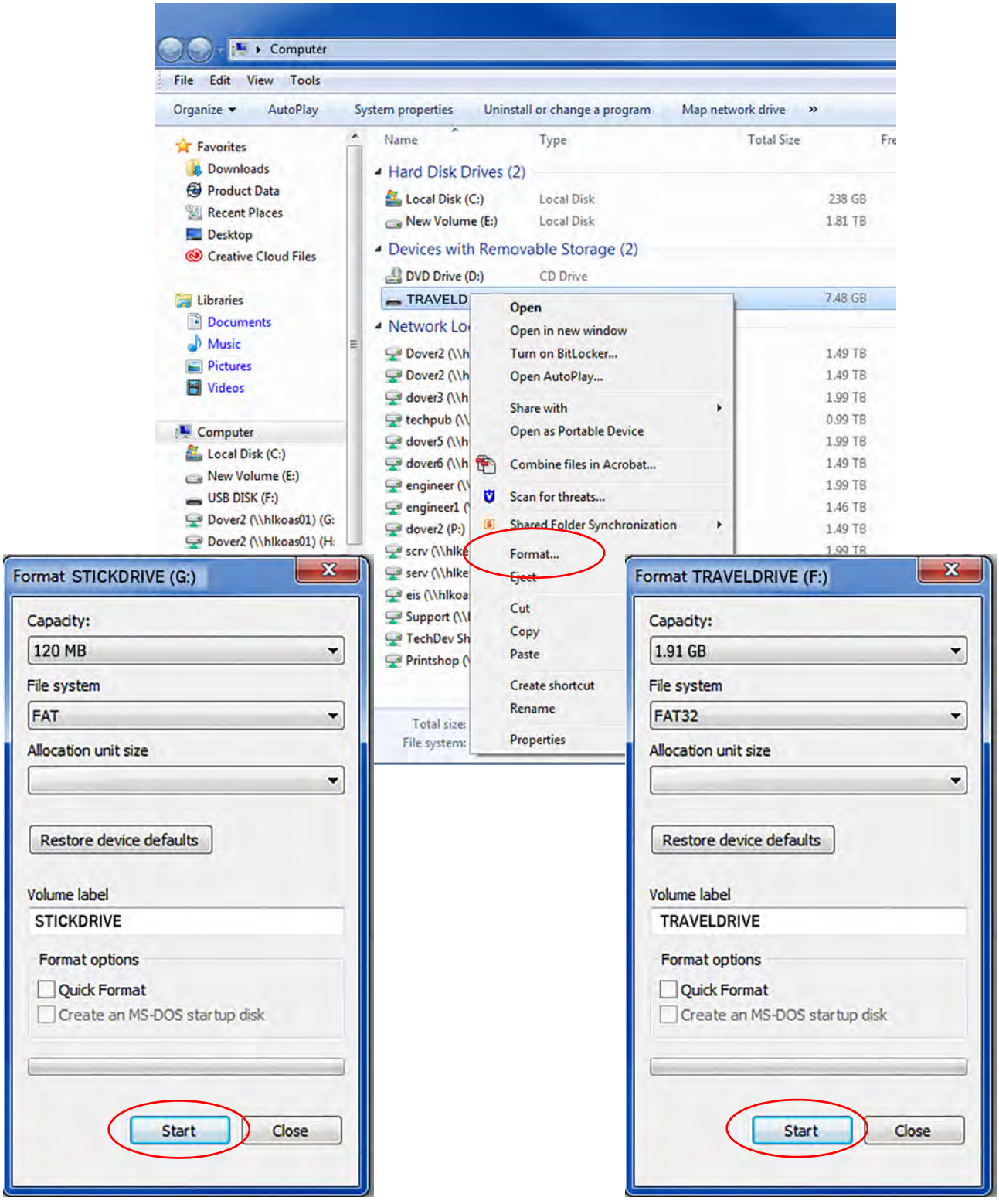
Device	Definition	Installed Software Version
CPUC	Controller Generic	
SP	Safety Processor	
NP	Normal Processor	
SELA	Selector Node A	
CWIL/DPIA	DPIA Node A	

How to Format a USB Flash Drive

A USB flash drive is used to load software files into the CPUC, DPIA, Selector, and CAN Node cards (of all types). A manufacturing-supplied USB flash drive ships with each job. The USB has the current version of the job configuration file software and documentation for the job.

1. Use Windows Explorer to access the USB flash drive; the recommended USB flash drive is part number 9811126.
2. Right-click on the drive, and select **Format**.
3. Determine the size of the USB flash drive, select the appropriate option from the File System drop-down box, and click **Start**. See Figure 7 on page 5-33.
   - If the flash drive is less than 2GB, select the FAT option.
   - If the flash drive is 2GB or larger, select the FAT32 option.

How to Format a USB Flash Drive
(continued)



If USB flash drive is less than 2GB

If USB flash drive is more than 2GB

Figure 7 - USB Flash Drive Windows

USB Flash Drive Preparation

Requirement: PC with an available USB port, and a USB flash drive

1. At the root of the USB flash drive, create a "tke" folder. When creating folders on the USB flash drive, all folder names must be in lowercase for the CPU to recognize the folder names. See Figure 8.
2. Inside the "tke" folder, create two separate folders: "update" and "backup."
3. Access the generic file (if required) and place a copy of the generic file into the "\tke\update" folder.
4. Create a subfolder in the "\tke\backup" folder for each elevator controller being updated/reloaded.

   Helpful Tip: The "\tke\backup" location is a convenient place for quick access to files at a later time.
5. Access the needed software, and place a copy of each elevator's configuration (.cfg) file in the corresponding subfolder of the "backup" folder. The job configuration file name has the elevator job number ("xxxnnn") included in it. See Table 1.

File Type	CPUC
Configuration	jobxxxnnn.cfg
Generic	icon-cpua.v6r4D_

Table 1 - CPUC File Type

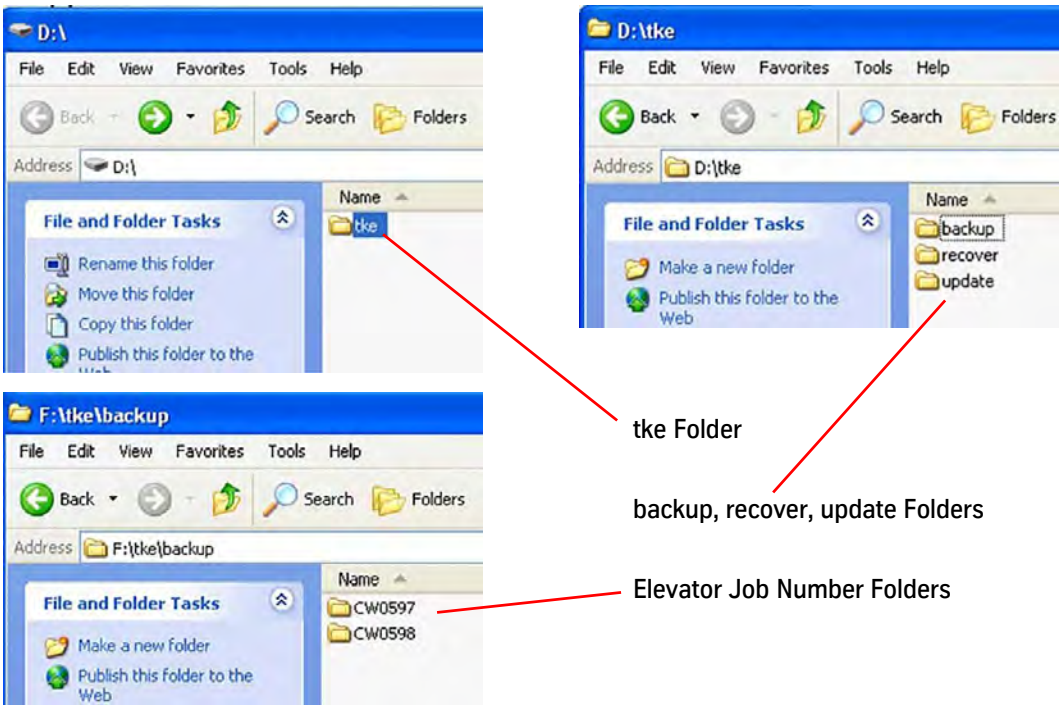


Figure 8 - Create Folders for USB Flash Drive

USB Flash Drive Preparation
(continued)

6. Use Windows Explorer to access the job files placed in the "\tke\backup\" folder and copy the required elevator's "jobxxnnnn.cfg" file to the "\tke\update" folder.

7. Use Windows Explorer to verify that the required software files are in the "/tke/update" folder on the USB flash drive.

- Only one version of generic file is permitted in the folder at a time.
- If multiple job files are placed in the update folder, the STAT LED will continuously flash every 100ms.
- If multiple generic files are present in the update folder at the time of an update, the CPUC Card could become corrupted, requiring the Recover Utility to be used.
- The generic and configuration upload may be processed either individually or simultaneously.
- The CPU uploads the configuration (_.cfg) file located in the "\tke\update" folder. When the upload completes, the _.cfg file is deleted from the update folder.
- The generic file remains in "\tke\update\" folder until manually deleted. This is to facilitate updating generic files across a group of controllers using one USB flash drive.

9. Remove the USB flash drive from the computer.

Backup the Job Software

1. Place the controller on Inspection Operation.

2. Insert the prepared USB flash drive into the CON6 USB port on the CPUC Card.

CAUTION

Transferring software between the CPUC and USB flash drives requires a few minutes to complete. Resetting the card during this time could result in corrupting the USB and the CPUC.

3. Enter the UDLS Command to copy the "jobxxnnnn.cfg" file and generic file from the CPUC Card to the "\tke\backup\jobnumber" folder on the USB Flash Drive.
   From UIT: Block Select Adjustments > Commands Upload > UDLS.

4. Once the backup is complete, remove the USB flash drive from the CPUC, and return the car to operation.

Upload Software to CPU Cards

Recommendations

- Before starting any software updates in control system, backup the software.
- For grouped controllers: When updating the master controller, isolate it from the rest of the group by disconnecting IOF CON40, CON1, CON11, and CON12 as well as CPUC CON5. This action will cause the next car to take over the master controller of group operations assignment while software is being loaded. After software is loaded and operation is restored, restore the connectors and cable.

CAUTION

Uploading software to the CPU requires a few minutes to complete. Resetting the card during this time could result in corrupting the USB flash drive and damaging the card.

1. Place the controller on Inspection Operation.
2. Insert the prepared USB flash drive into the CPUC Card, CON6 USB port.
3. Press and release **RST**.
4. Press and hold **UDL** while the CPU is rebooting.
5. Press and hold **UDL** until the STAT LED blinks a Morse Code `Z' (two long and two short blinks). When the upload is complete, the STAT LED blinks 3 times before the CPUC Card resets itself.

NOTE

- If the upload takes longer than 15 minutes, or if the STAT LED blinks every 100ms continuously, the upload has failed. Cycle power to the controller and then remove the USB from the CPUC Card. See Upload Software Troubleshooting on page 5-37.
- If the CPU is stuck in Zmodem for longer than 15 minutes, remove power from the card, and remove the USB flash drive.

6. After the upload is successful, issue the following commands from Block Select Adjust > Commands Common: GET, WRT, RFL, and RRF.
7. Cycle from Inspection to Automatic and back to Inspection.
8. Cycle power.
9. Verify that the controller will run from Inspection Operation. Should the car fail to run, troubleshoot fault codes and I/O states to determine the issue. See Troubleshooting I/O Issues on page 4-13.
10. Place the door disconnect switch in the Door Disconnect position.
11. Place the inspection switch in the Normal position.

Upload Software to CPU Cards
(continued)

12. Use Quick Commands, and issue car calls to verify Automatic Operation. Hall calls do not function while on Door Disconnect Operation.

    Block Select Real Time Motion > Quick Commands > Front Car Call/Rear Car Call.

NOTE If the job configuration file was a manufacturing file and not a back up copy of an adjusted job (from the UDLS Command), perform a new hoistway scan and adjust for the job (Fire Service, HWA, EP, security, date/time, etc.). See the *Adjustment* section of this manual.

13. Place the door disconnect switch in the OFF position.

14. Verify that the car and hall buttons function correctly.

15. Return the car to service.

Upload Software Troubleshooting

1. Verify the folder structure and the file location within the folder structure. See USB Flash Drive Preparation on page 5-34.

2. Use a different USB flash drive (recommended device: part number 9811126).

3. Copy the software files to a different USB drive.

4. Format the USB flash drive. Create a new folder structure and copy needed file(s) into the Update folder. See How to Format a USB Flash Drive on page 5-32.

5. If the software fails to load again, replace the CPUC Card.

Software Updates to Safety Node Devices over CAN

1. Move the needed files into the "\tke\update" directory. See Table 2 on page 5-38 for file identification.

   See also: USB Flash Drive Preparation on page 5-34.

2. Place the controller on Inspection Operation.

Software Updates to Safety Node Devices over CAN
(continued)

3. Use the UIT to update the software of the Safety Processor.
   a. Place JP2 on pins 1-2 beside the RSTSP.
   b. Use the UIT to issue the following commands:
      » UFWSPF Command: Adjustments > Commands Upload > UFWSPF.
      » SPC Command: Adjustments > Commands Startup > SPC.

   The UIT will display the upload progress and completion. When finished, the CPUC will report **SP Config Complete**.
   c. Place JP2 on pins 2-3.
   d. Cycle power to the controller.

Device (via USB flash drive)	Command	File Name
Safety Processor	UFWSPF	SPH.vXrX
Normal Processor	UFWNPF	N/A

Table 2 - Software Update File Information

Configure the Safety Processor

1. Find the Safety Processor (SP) Programming Jumper JP2 (located on the IOF Card next to **RSTSP**).
2. Place the SP Programming Jumper on pins 1 and 2.
3. From the UIT, press any button while **Vertical Express** is displayed, and enter the pin number - 1234144. If the wrong pin number is entered, continue to press **UP** until **Vertical Express** appears in the window, then enter the pin number again.
4. From the UIT, access **Block Select Adjustments** and press **ENTER**.
5. Press **UP** or **DOWN** to scroll to **Commands > Startup**, and press **ENTER**.
6. Press **UP** or **DOWN** to scroll to the **SPC Command**, and press **ENTER**.
   - The UIT should display **SP Config Complete**.
   - If the SP Programming Jumper is in the wrong position or the jumper shunt is bad, the UIT will return **SP Programming Jumper Not Installed**. Correct the jumper, and press **ENTER** again.
7. Place the SP Programming Jumper on pins 2 and 3.
8. Press **RST** on the CPUC. Once the controller recovers, repeat the steps to access the Main Menu Screen.

At this point, the Safety Processor is configured and either the SP Good or the SP Bad LED should be illuminated. The SP BAD LED will remain lit until the nodes have been taught and configured.

Networking

See Group CAN Channel Termination on page 4-9.

REFERENCE SECTION

REFERENCE SECTION

Contents

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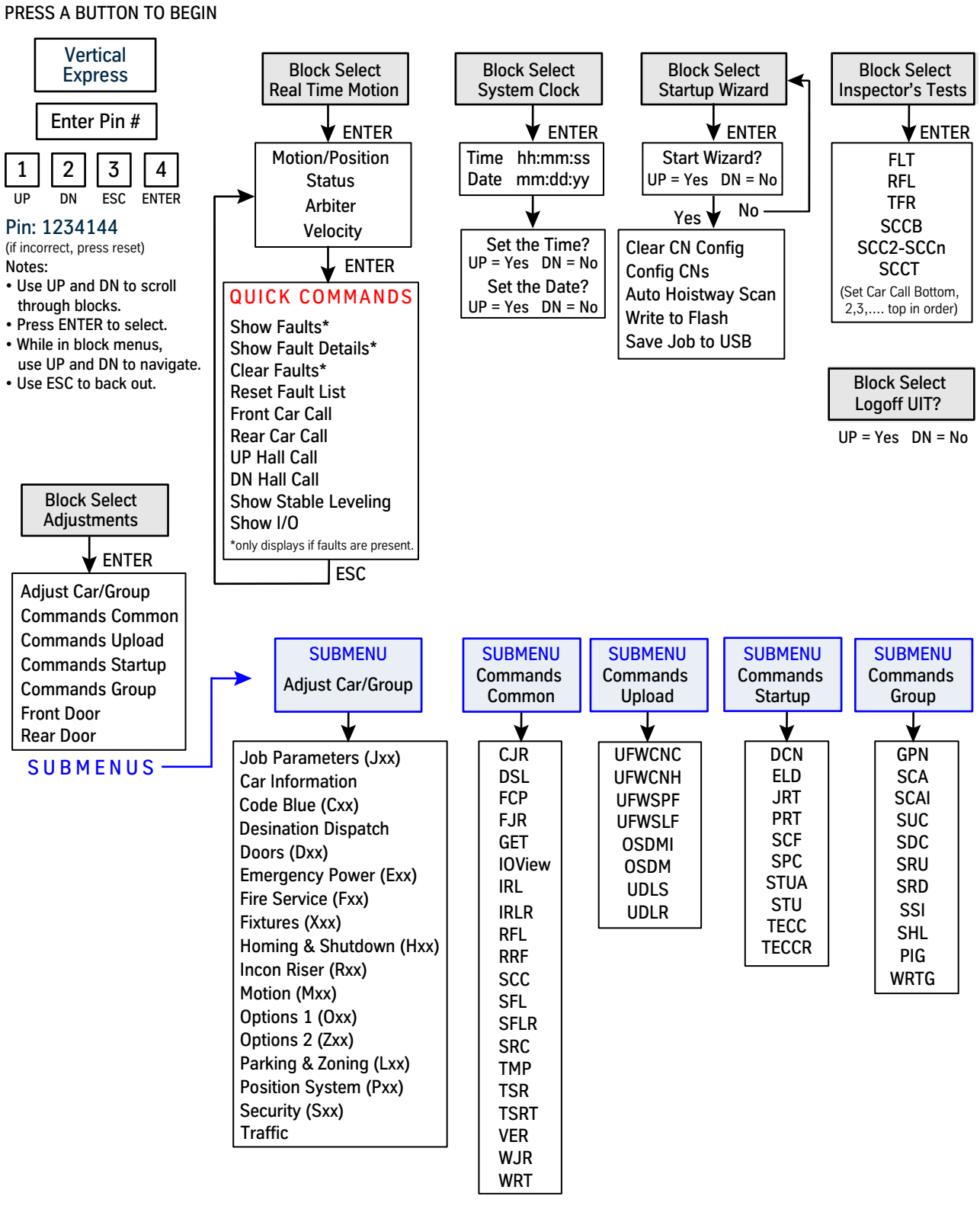
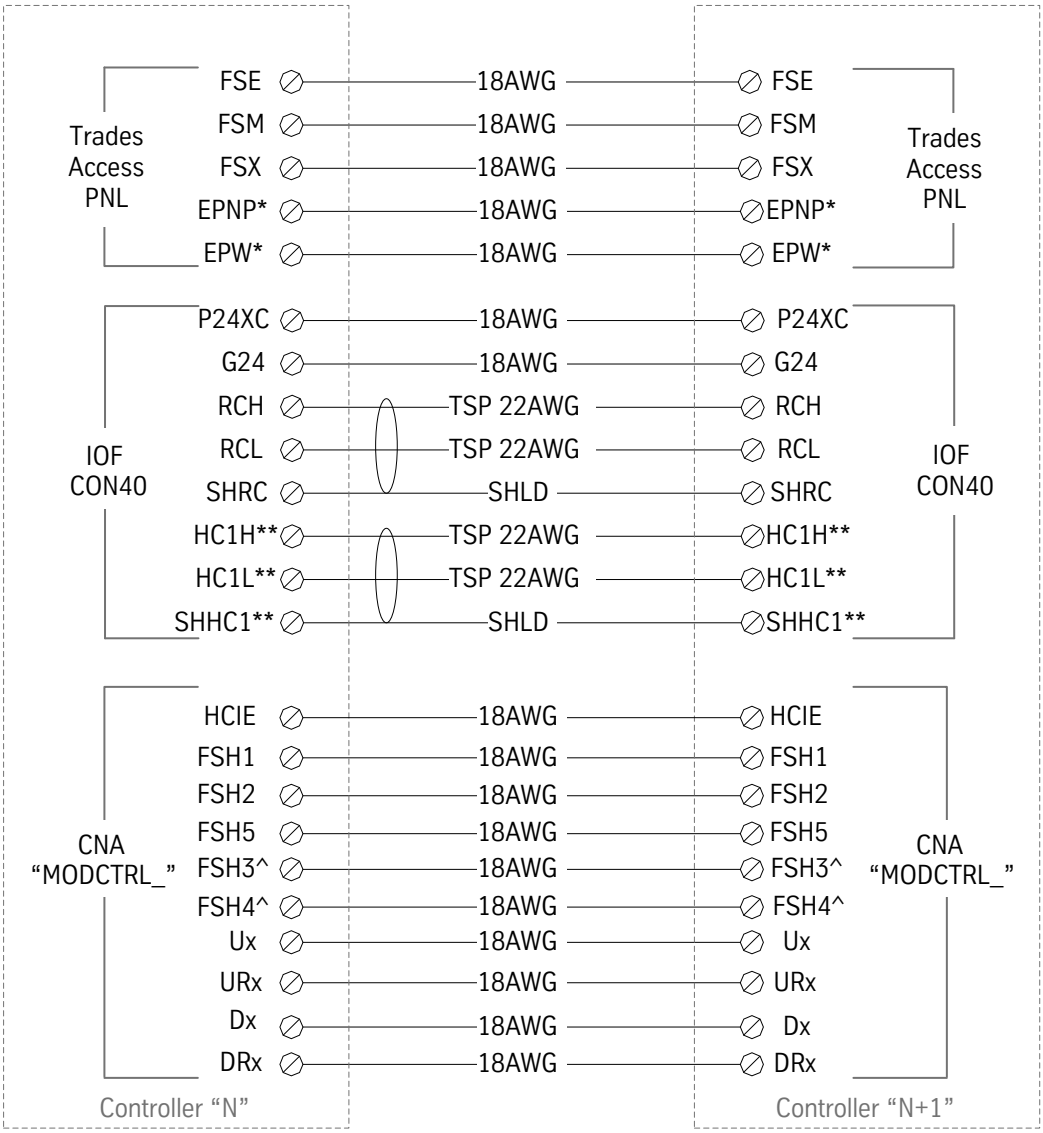
UIT Menu Tree



Cable Connections



Notes: Third party equipment may require additional wiring not shown, see manufacturer's document for wiring requirements.

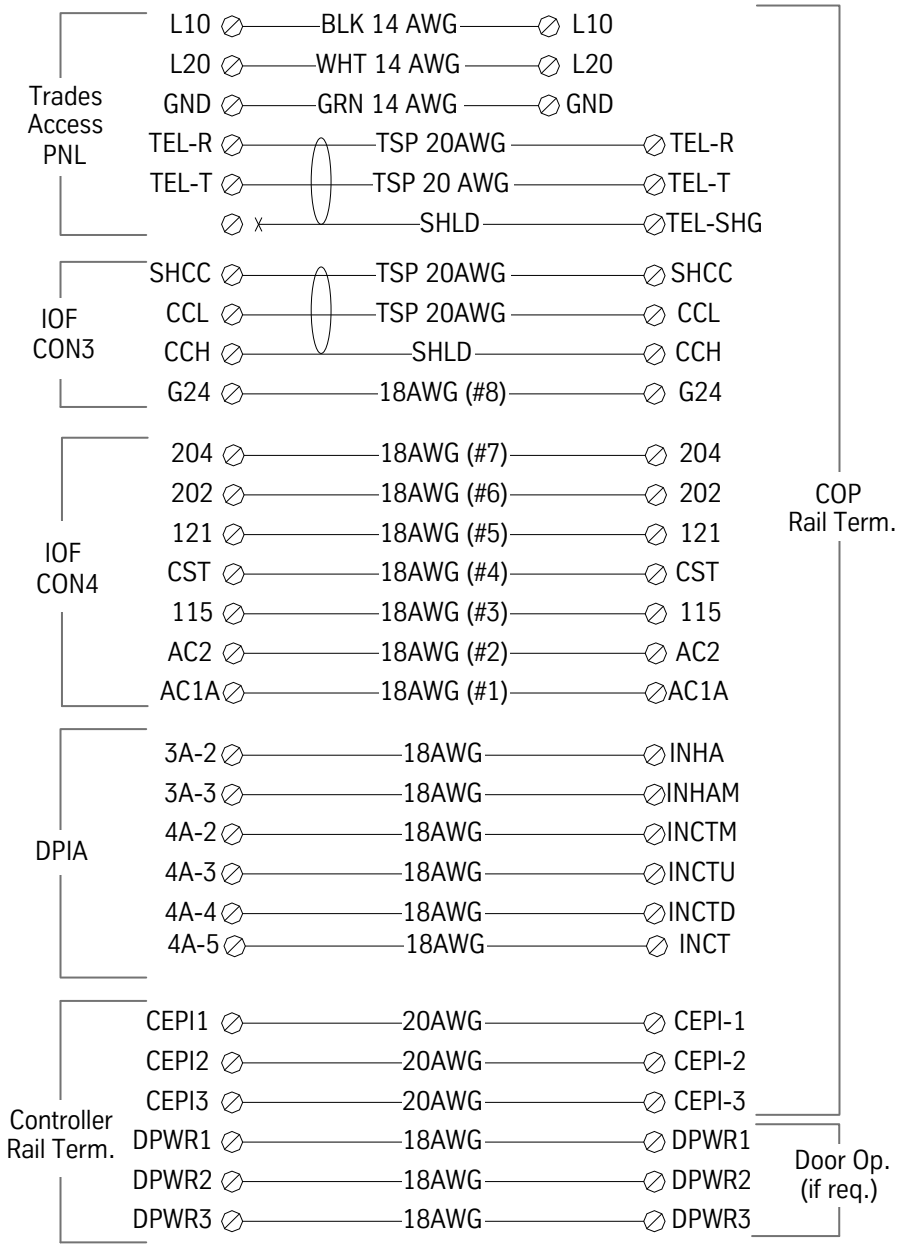
*Not cross-connected for battery lowering option.

**Only cross-connected when CAN device is connected on CAN Channel 3.

^Only cross-connected when remote Fire Service keyswitch option is provided and I/O are present in job image.

Machine Room Cross-Connection Reference

Cable Connections
(continued)



Notes: Third party equipment may require additional wiring not shown, see manufacturer's docs for wiring requirements.
AC1/AC2 from Trades Panel is for cab lighting.
AC1A/AC2 from IOF is for the elevator control system.

Traveling Cable Connections Reference

Hoistway Cable Connections Reference

NOTE: Any additional optional I/O requires one wire per I/O for hoistway (indicator or input).

CNA Fixed I/O Charts

Notes

Con15 - CAN Channel
Con14 - 24VDC power supply
Con13 - 24VDC loads (fused)

Pin No.	CON15	Pin No.	CON13
1	SHCC	1	G24
2	CCL	2	G24
3	CCH	3	G24
	CON14	4	24VDC
1	G24	5	24VDC
2	P24G	6	24VDC

Pin No.	CON12	Pin No.	CON11
1	SPAH1	1	HLUR1
2	SPAH2	2	HLUR2
3	SPAH3	3	HLDR2
4	SPAH4	4	HLUR3
5	SPAH5	5	HLDR3
6	SPAH6	6	HLUR4
7	SPAH7	7	HLDR4
8	SPAH8	8	HLDR5

Pin No.	CON10	Pin No.	CON9
1	UR1	1	HLD5
2	UR2	2	SOA
3	DR2	3	ISC
4	UR3	4	SPAL1
5	DR3	5	SPAL2
6	UR4	6	SPAL3
7	DR4	7	SPAL4
8	DR5	8	SPAL5

Pin No.	CON8	Pin No.	CON7
1	D5	1	HCIE
2	HLU1	2	U1
3	HLU2	3	U2
4	HLD2	4	D2
5	HLU3	5	U3
6	HLD3	6	D3
7	HLU4	7	U4
8	HLD4	8	D4

Pin No.	CON6	Pin No.	CON5
1		1	FSH1
2		2	FSH2
3		3	FSH5
4		4	FS1I
5		5	FSH3
6		6	FSH4
7		7	
8		8	

Pin No.	CON4	Pin No.	CON3
1	DOB	1	PI4
2	DCB	2	PI5
3	DOBR	3	BUZ
4	DCBR	4	CLU
5	FSC1	5	CLD
6	FSC2	6	CLUR
7	FSRI	7	CLDR
8	FSCC	8	CLFS

Pin No.	CON2	Pin No.	CON1
1	CR1	1	CCIE
2	CR2	2	C1
3	CR3	3	C2
4	CR4	4	C3
5	CR5	5	C4
6	PI1	6	C5
7	PI2	7	DAU
8	PI3	8	DAD

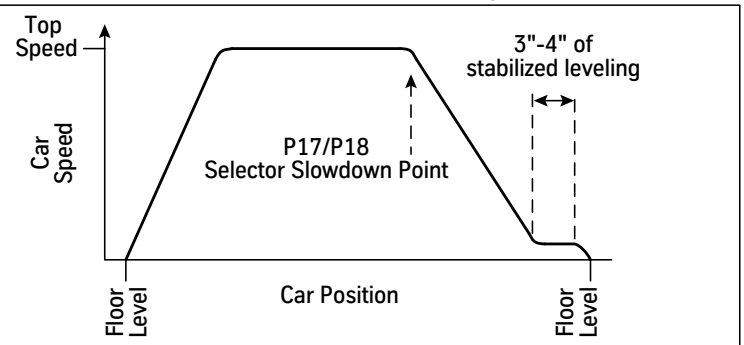
ICON32 I/O Chart

Port #	I/O Number							
	1	2	3	4	5	6	7	8
1	INCN	INCNM	INCNU	INCND	CDBM	CDBM2	HDBM	HDBM2
2	BYCST	BYHA	BYHAR	BYHAB	BYHAT	BYCDB	BYHDB	BYDZ
3	IB	IT	IF	IR	CB	CT	CF	CR
4	SAFSPM	SAFCPU	SAFCPM	SAFE	TSRCPU	CDCF	CDCR	CST
5	MCC1	MCC2	UFS	USS	DFS	DSS		
6	MCC1M	MCC2M	UFSM	USSM	DFSM	DSSM		
7						PRSW	OLTS	OLTO
8					CHKTSR	CHKDS	TSRCPM	NTSNPM
9						DD		
10	FSM	FSX	FSE	FST	FSSR	STBC	EPW	EPNP
11	HATU	HATUM	HATD	HATDM	HABU	HABUM	HABD	HABDM
12								
13	FSBZ							
14								
15	LVU	LVD	DZ1	DZ2	LVUR	LVDR	DZ1R	DZ2R
16	TSR1							
17	INCTM	INCTU	INCTD	INCTU2	INCTD2	INCT	INHA	INHAM
18								
19	CCIE	C1	C2					
20								
21			BUZ					CLFS
22	DOB	DCB			FSC1	FSC2	FSRI	FSCC
23	FSH1							
24								
25	HCIE	U1		D2				
26	D5	HLU1		HLD2				
27			ISC					
28								
29								
30								
Ports 1-18 are IOF connections. Ports 19-30 are CNA node 0 (MODCTRL1).								

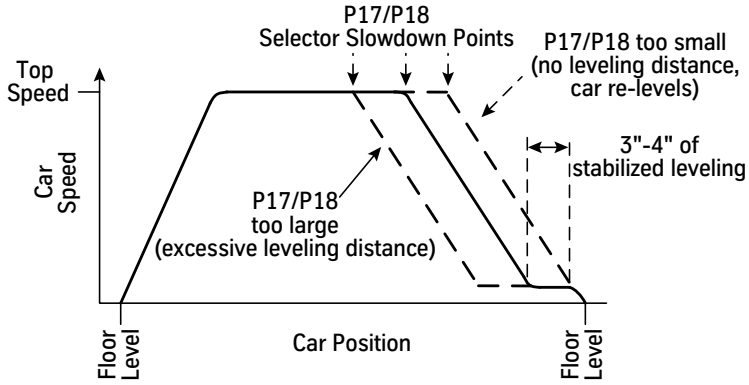
I-2/I-3 Valve Reference

The Slowdown and Floor Approach Chart (below) explains the effects of slowdown point and rate adjustments on car stabilized leveling distances. These adjustments should be referenced as needed, specifically during final valve adjustments or subsequent service calls.

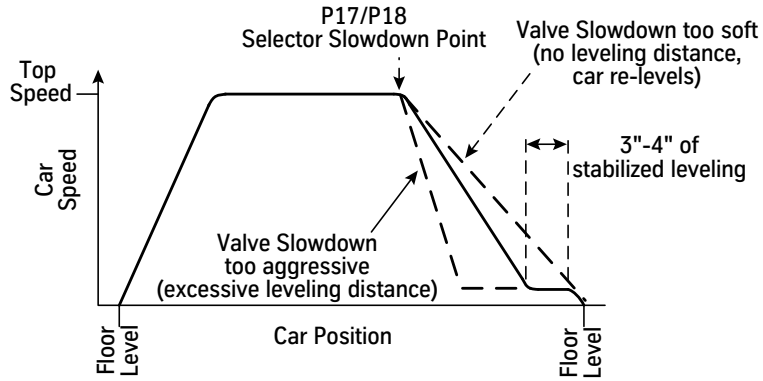
UIT: Motion Quick CMD > Stabilized Leveling Readout



This figure shows the requirement of 3"-4" of leveling distance. If the car slowdown and approach to the floor results in longer leveling than 3"-4", car performance and fluid could degrade due to unnecessary fluid heating.



This figure shows the effect of using the P17/P18 Adjustments to control the leveling distance. If the car slowdown and approach to the floor is comfortable as adjusted in the valve but results in incorrect leveling distance (3"-4"), move the P17/P18 Selector Showdown Point properly.

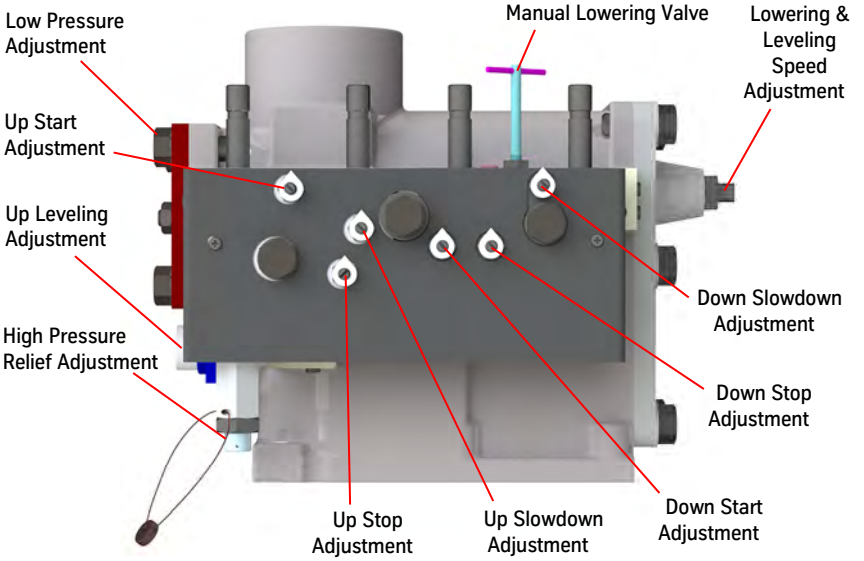


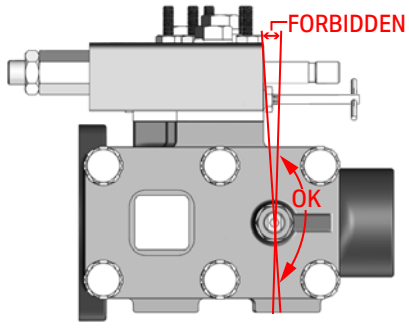
This figure shows the effect of using the I-2/I-3 Valve Slowdown Screw Adjustments to control the leveling distance. If the car showdown point P17/P18 is set but leveling is incorrect (not 3"-4"), move the Valve Slowdown Screw.

- UP SLDN Screw: IN = Shorter leveling distance, increased leveling speed, softer feel to slowdown.
- DOWN SLDN Screw: OUT = Shorter leveling distance (with full load the distance is even shorter), Set for at least 2" of leveling with a full load and increase P17 to help with full load down floor approach.

I-2®/I-3® Valve Quick Reference

This section may be used to reset the valve adjustments and start a new, complete valve setup.





REFERENCE INFORMATION

The closer the flats on the lowering & leveling screw get to perpendicular with the axis of the tank return line, the more likely the valve will lock up in the down direction.

NOTES
1. Make adjustments with the car empty.
2. Ensure system has at least 90 PSI static pressure before adjusting.
3. Do not adjust the valve unless oil temperature is between 80° - 110° F.
4. Do not attempt to adjust the Lowering and Leveling Screw unless the car is moving or resting on the buffer stands with pressure off the lowering piston, or valve damage may result.
5. Leveling speed and zone adjustments are sensitive and may require multiple attempts.
6. After completing final adjustments, bleed the car down slightly with the manual lowering valve to see if it levels back up with the floor. If not, the slowdown adjustments need to be rechecked.

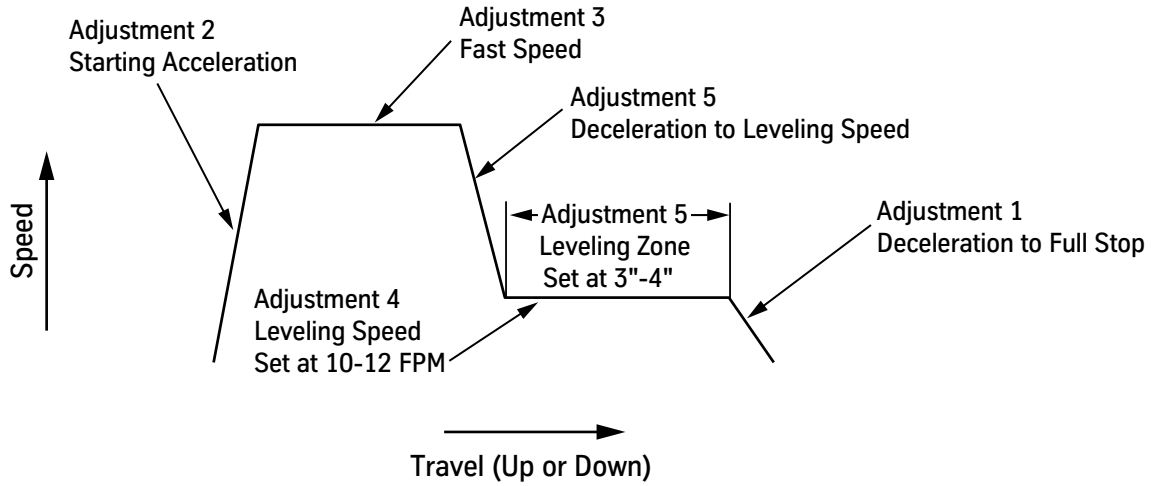
ADJ. NAME	PRELIMINARY SETTINGS
RELIEF	Appx. 5/8" out
LOW PRESSURE	Turn CCW until screw disengages from piston, then CW until resistance is felt, turn CCW an additional 3 turns
UP LEVELING	Turn CCW until the screw stops, then CW 2 turns
UP STOP	Turn CW until the screw stops, then CCW 2 turns
UP SLOWDOWN	Turn CW until the screw stops, then CCW 4 turns
UP START	Turn CW until the screw stops, then CCW 3 turns
DOWN START	Turn CW until the screw stops, then CCW 6 & one-half turns
DOWN STOP	Turn CW until the screw stops, then CCW 6 turns
DOWN SLOWDOWN	Turn CW until screw stops, then CCW 5 & three-eighths turns
LOWERING & LEVELING	Turn CW until the screw stops, then CCW 3 turns
MANUAL LOWERING	Turn CW until the screw stops (closed)

ADJ. NAME	PRELIMINARY ADJUSTMENTS
LOW PRESSURE	Make this adjustment before any other! Disconnect both UP solenoids (disconnect CON15 on IOF) and activate the pump (the car should not move at this point). SLOWLY turn the Low Pressure screw CW until the car begins to move, then CCW until it just stops. For 95 GPM pumps and lower, turn CCW an additional one-quarter turn. For over 95 GPM pumps, turn CCW an additional one-half turn. Turn off the pump, tighten lock nut, and reconnect both solenoids. No further adjustment is necessary on Low Pressure. Turning CW closes the regulator piston.
RELIEF	Never operate above 600 PSI! Open Manual Lowering valve slightly, shut off valve to jack line and run the car up on Machine Room Inspection. Turn Relief screw CW to increase pressure, CCW to reduce pressure. Close Manual Lowering valve and recheck pressure, adjust Relief screw as necessary. Stop the run, vent pressure with the Manual Lowering valve, and open the shut off valve.

Valve Final Adjustments

This is a quick reference for the I-2/I-3 Valve for use by experienced mechanics.
See the I-2/I-3 Valve component manual for procedure and troubleshooting information.

Typical Performance Curve



Recommended Adjusting Order: Adjustment 1, 2, 3, 4, 5 on DOWN side, then Adjustment 1, 2, 3, 4, 5 on UP side.

Adjustment		Effect On Performance		Notes
No.	Name	CW	CCW	
1	Down Stop	Softer stop, firmer start, faster leveling	Firmer stop, softer start, slower leveling	Set first then leave alone. Affects other Down adjustments.
	Up Stop	Softer stop, firmer start	Firmer stop, softer start	Set before Up Start. Too soft will allow car to overshoot.
2	Down Start	Softer start	More abrupt start	Must be more open (CCW) than Down Stop. Increase CCW if full speed cannot be achieved on one-floor run.
	Up Start	Softer start	More abrupt start	Must be more open (CCW) than Up Stop. Increase CCW if full speed cannot be achieved on one-floor run.
3	Lowering & Leveling*	Reduce fast lowering speed	Increase fast lowering speed	Adjust in roughly one-half turn increments.
	Up Fast	N/A	N/A	No adjustment. Set by pump capacity.
4	Lowering & Leveling*	Reduce leveling speed	Increase leveling speed	Adjust in less than one-eighth turn increments. Hold screw to tighten locknut so settings don't change. Very sensitive.
	Up Leveling	Increase leveling speed, softer slowdown	Decrease leveling speed, firmer slowdown	May affect UP Slowdown.
5	Down Slowdown	Increase leveling zone, firmer slowdown	Decrease leveling zone, softer slowdown	Very sensitive. Must find "sweet spot" of about one-eighth turn range to affect adjustment. Affects Down Leveling.
	Up Slowdown	Decrease leveling zone, softer slowdown, increase leveling speed	Increase leveling zone, firmer slowdown, decrease leveling speed	Very sensitive. More CCW gives more abrupt slowdown. Affects Up Leveling.

* If the valve locks up in the down direction due to the orientation of the flats on the lowering and leveling screw, run the car up and change the orientation of the screw 90° while the car is moving to restore function.

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