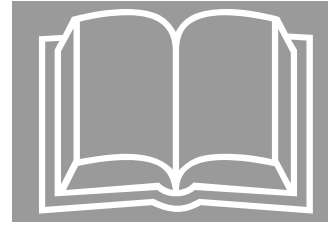


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Technical Information for
COP III Ordering, Installation, and Setup

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1 Scope

This document covers the installation and setup instructions for the COP III system, as well as parts ordering. See Appendix B for related TIPS.

2 Background

COP III is a direct replacement for both the COP I (8200CA through A8200CA) and COP II (A_A26800ACA, A_A26800ACB, A_A25000C, A_A25000D) products.

The first COP processor-based solution was the COP I; it was replaced by the COP II due to obsolescence. The COP II improved upon the COP I design in the following ways:

- Better load-weighing circuitry and calibration procedure
- Speech override feature when the intercom is activated
- Short circuit protection for all outputs
- Error reporting
- Improved system packaging for easier servicing of floor lamps

The COP II has now been replaced by the COP III. The COP III has the following improvements over the COP II:

- Improved short-circuit protection for all outputs.
- Open circuit detection for all outputs. The COP III can detect an open (blown open) indicator, in addition to short circuits Unlike the COP II, which required physical hardware change, the COP III can use LED indicators in place of incandescent ones.
- Added LEDs for diagnostics. While the COP II LEDs used to indicate errors and proper communication between the COP and the car controller are maintained, LEDs have been added to indicate the status of various power supplies/voltages on the COP III boards. In addition, a heartbeat LED was added to the COP III processor board to indicate processor status.

3 Part Ordering Information

UNITEC customers may place order for COP III kits using Table 1.

Table 1: COPIII kit part numbers, description and contents

Part Number	Description	Contents
AAA25000ES1	COP II to COP III kit	COP III Boards
AAA25000ES4	COP I to COP III kit	COP III Button Cables Mounting Hardware Installation TIP

4 Installation

4.1 Mechanical Installation

The COP III assembly has the same physical dimension as the COP I PCBA. It is made up of the processor board A_A26800AWD mounted on the COP III I/O board A_A26800AWC_, as shown in Figure 1.

1. Turn off mainline power, lock out, tag out, test and verify, following all safety procedures.
2. Remove the COP I or II PCBA from the swing panel (for AD-FIX installations) or the enclosure (for AD-FIX-NOT installations where the COP board is located in an enclosure on the top of the car).
3. Install the COP III hardware, using the hardware provided and/or retained.

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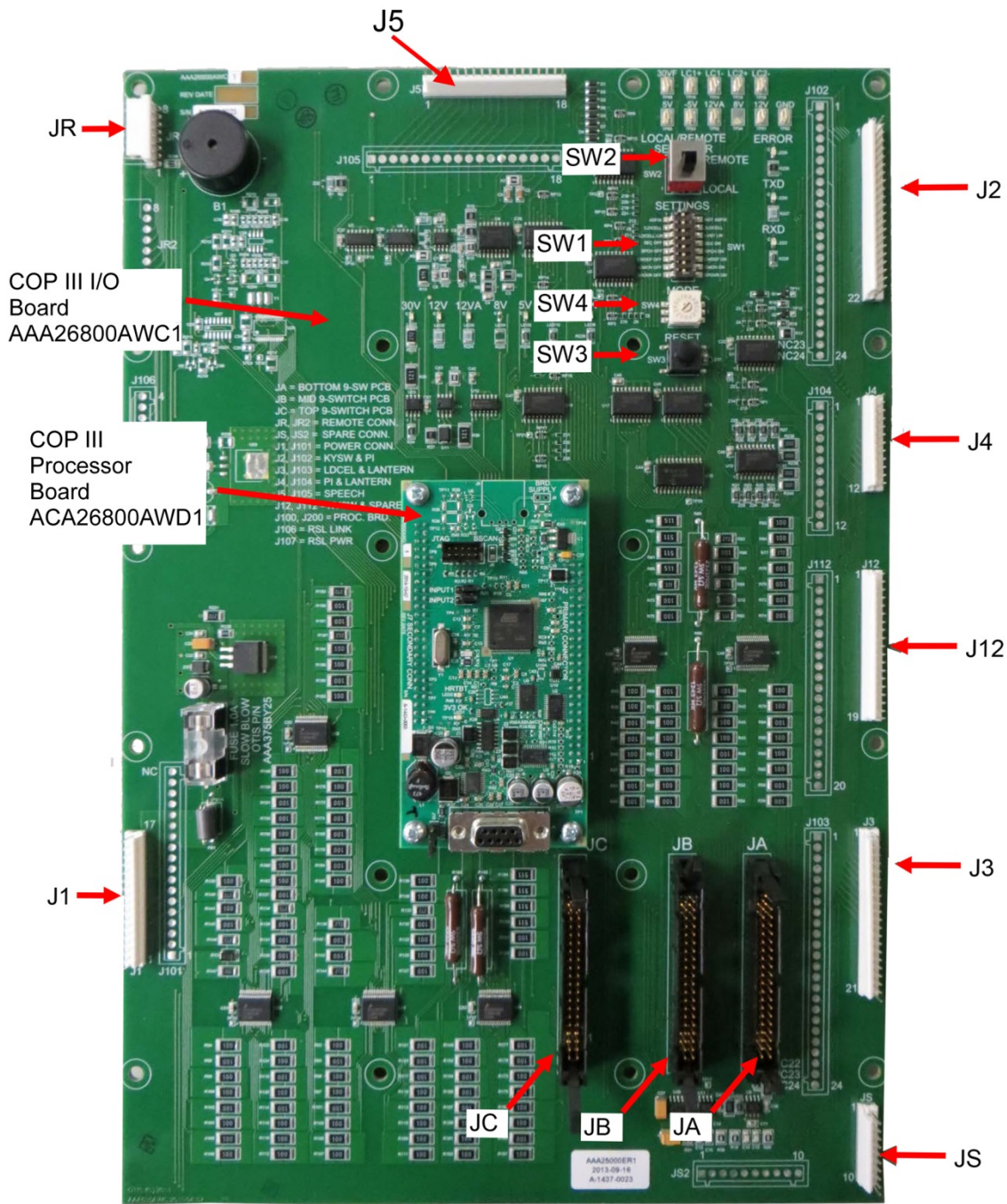


Figure 1: COP III Assembly AAA25000ER1 (consists of ACA26800AWD1 processor board mounted on AAA26800AWC1 I/O board)

4.2 Electrical Installation

Insert all harnesses removed previously into the COP III. Existing connectors should fit into the COP III board connectors. The connector locations are shown in Figure 1. Table 2 lists the IDC headers their designators and pin assignments.

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Table 2: COP III IDC Header Connections

Connector Pair	IDC Connection	Signal Name	Signal Description
J1 Main Power & Current Loop Communication Connector	J1-1	12VDC	12 VDC Power Input
	J1-2		
	J1-3		
	J1-4	N.C.	No Connection
	J1-5	SIN2	Current Loop Communication (+) Input
	J1-6	SIN1	Current Loop Communication (-) Input
	J1-7	SOT1	Current Loop Communication (+) Output
	J1-8	SOT2	Current Loop Communication (-) Output
	J1-9	N.C.	No Connection
	J1-10		
	J1-11		
	J1-12	FB	30 VDC Main Power Input (unused)
	J1-13		
	J1-14		
	J1-15	DC RETURN	Digital Return
	J1-16		
	J1-17		
J2 Keyswitch Input & PI Connector	J2-1	DC RETURN	Digital Return
	J2-2		
	J2-3	AKS	Attendant Keyswitch Input
	J2-4	NSPB	Non-Stop Push Button Input
	J2-5	N.C.	No Connection
	J2-6	ISS	Independent Service Keyswitch Input
	J2-7	EXPRI	Express Priority Keyswitch Input
	J2-8	CEK	Car Emergency Keyswitch Input
	J2-9	MGS	Motor Generator Keyswitch Input
	J2-10	RB	Reset Button Input
	J2-11	CLR	Clear Keyswitch Input
	J2-12	SET	Set Keyswitch Input
	J2-13	NC	No Connection
	J2-14	SEC	Security Jewel Output
	J2-15	NC	No Connection
	J2-16	ECL	Emergency Car Jewel Output
	J2-17	PIDREFA	PI A Data Reference Output
	J2-18	PICREFA	PI A Clock Reference Output
	J2-19	PICLKA	PI A Clock Output
	J2-20	PIDATAA	PI A Data Output
	J2-21	30VDC	30 VDC Power Connection
	J2-22		

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Table 2: COP III IDC Header Connections (continued)

Connector Pair	IDC Connection	Signal Name	Signal Description
J3 Load Cell & Lantern Connector	J3-1	30VDC	30 VDC Power Connection
	J3-2		
	J3-3	12Va	12 VDC for TBD
	J3-4		
	J3-5	CULLA	Primary Car Lantern Up Output
	J3-6	CDLLA	Primary Car Lantern Down Output
	J3-7	AUDIO1	Intercom (-) Input
	J3-8	AUDIO2	Intercom (+) Input
	J3-9	FDL	Further Demand Jewel Output
	J3-10	EPSL	Express Priority Service Jewel Output
	J3-11	LFC	Car Light Fan Relay Output
	J3-12	BU	Buzzer Output
	J3-13	MGPL	Motor Generator Jewel Output
	J3-14	NC	No Connection
	J3-15		
	J3-16	BR2B	Load Cell 2 (-) Connection
	J3-17	BR2A	Load Cell 2 (+) Connection
	J3-18	BR1A	Load Cell 1 (+) Connection
	J3-19	BR1B	Load Cell 1 (-) Connection
	J3-20	DC RETURN	Digital Return
	J3-21		
J4 PI & Lantern Connector	J4-1	30VDC	30 VDC Power Connection
	J4-2		
	J4-3	PIDATAB	PI B Data Output
	J4-4	PICLKB	PI B Clock Output
	J4-5	CULLB	Secondary Car Lantern Up Output
	J4-6	CDLLB	Secondary Car Lantern Down Output
	J4-7	PIDREFB	PI B Data Reference Output
	J4-8	PICREFB	PI B Clock Reference Output
	J4-9	ECL	Emergency Car Jewel output
	J4-10	SECL	Security Jewel Output
	J4-11	NC	No Connection
	J4-12	DC RETURN	Digital Return

COP III ORDERING, INSTALLATION, AND SETUP

Table 2: COP III IDC Header Connections (continued)

Connector Pair	IDC Connection	Signal Name	Signal Description
J5 Speech Board Connector	J5-1	12VDC	12 VDC Power Output
	J5-2	BUSY	Speech Board Busy Input
	J5-3	START	Speech Board Start Output
	J5-4	RESET	Reset Signal
	J5-5	SS2	Speech Board SS2 Output
	J5-6	UDFLG	Speech Board Up/Down Flag Output
	J5-7	N.C	No Connection
	J5-8	SS0	Speech Board SS0 Output
	J5-9	SS3	Speech Board SS3 Output
	J5-10	SS5	Speech Board SS5 Output
	J5-11	SS4	Speech Board SS4 Output
	J5-12	N.C.	No Connection
	J5-13	SS1	Speech Board SS1 Output
	J5-14	N.C.	No Connection
	J5-15	AUDRLY	Speech Board Audio Relay Output
	J5-16	AUDIO1	Intercom (-) Input
	J5-17	AUDIO2	Intercom (+) Input
	J5-18	DC RETURN	Digital Return
J12 Keyswitch & Spares Connector	J12-1	DC RETURN	Digital Return
	J12-2	N.C	No Connection
	J12-3	HDO	Hold Door Open Keyswitch Input
	J12-4	PH2OFF	SES Phase II Off Keyswitch Input
	J12-5	SP-IN-1	Spare Input 1
	J12-6	NC	No Connection
	J12-7	SP-IN-2	Spare Input 2
	J12-8	N.C	No Connection
	J12-9		
	J12-10		
	J12-11	GRPSECL	Group Security Jewel Output
	J12-12	LP-TONE	Landing/Passing Tone Output
	J12-13	ECL	Emergency Car Jewel Output
	J12-14	SECL	Security Jewel Output
	J12-15	SP-OUT-1	Spare Output 1
	J12-16	SP-OUT-2	Spare Output 2
	J12-17	SP-OUT-3	Spare Output 3
	J12-18	30VDC	30 VDC Power Input
	J12-19	12VDC	12 VDC Power Input

COP III ORDERING, INSTALLATION, AND SETUP

Table 2: COP III IDC Header Connections (continued)

Connector Pair	IDC Connection	Signal Name	Signal Description
JS Spare Connector	JS-1	30VDC	30 VDC Power Input
	JS-2	AXDATA	Auxiliary PI Data Output
	JS-3	AXDREF	Auxiliary PI Data Reference Output
	JS-4	AXCLK	Auxiliary PI Clock Output
	JS-5	AXCREF	Auxiliary PI Clock Reference Output
	JS-6	SPJEWEL1	Spare Jewel Output 1
	JS-7	SPJEWEL2	Spare Jewel Output 2
	JS-8	N.C.	No Connection
	JS-9	SPRELAY	Spare Relay Output
	JS-10	DC RETURN	Digital Return
JR Remote Station Connector	JR-1	5Vx	Remote Board 5 VDC Output
	JR-2	ERRORLED	Remote Board Error LED Output
	JR-3	MD1	Remote Board Mode Signal 1
	JR-4	MD2	Remote Board Mode Signal 2
	JR-5	MD3	Remote Board Mode Signal 3
	JR-6	MD4	Remote Board Mode Signal 4
	JR-7	XRST	Remote Board Reset Input
	JR-8	RGND	Remote Board Return Connection

Ribbon cables for the COP III are slightly longer than those used on the COP II. These cables connect a maximum of six nine-switch PCBAs to the COP III.

Table 3: COP III 9-Switch PCBA Connectors and Mating Cables

COP III Connector	Usage	Cable Assembly
JA	First (lowest) and Second 9-switch button PCB connector	AAA174JX4
JB	Third and Fourth 9-switch button PCB connector	AAA174JX5
JC	Fifth and Sixth (highest) 9-switch button PCB connector	AAA174JX6

5 Electrical Setup

Setup is critical for proper operation of the COP III in the E401 system. The key steps required for proper setup are:

1. Setting system configurations/features (Section 5.1)
2. Power up and verification (Section 5.2)
3. EEPROM erase (Section 5.3)
4. Master code and control button selection (Section 5.4)
5. Connections test (Section 5.5)
6. Current calibration (Section 5.6)
7. Load weight calibration (Section 5.7)
8. System verification and test run (Section 5.8)
9. Secure floors (if required, Section 6)

5.1 System Configuration

Several COP III features are set via the following switches:

- **SW1, Settings Switch**
- **SW2, Local/Remote Selector Switch**
- **SW4, Mode Switch**

Proper selection of the switches is crucial to the setup sequence of the COP III.

5.1.1 Settings Switch (SW1)

Use SW1 to select the settings shown in Table 4 for the COP III system.

Table 4: SW1 Settings

Settings Switch Position	Options	Functions
1	AD-FIX	COP III will operate advanced fixtures on the car panel.
	NOT AD-FIX	COP III will operate non-advanced fixtures on the car panel.
2	1LDCELL	COP III uses only load cell 1 input for load weight measurements.
	2LDCELL	COP III uses both load cell 1 and load cell 2 inputs for load weight measurements (the values are averaged).
	NOTE: This switch is ONLY applicable if position 3 switch is set for LDCELL LW (see below).	
3	LDCELL LW	COP III uses the load cell inputs to calculate car load weight.
	LVDT LW	COP III does not process the load cell data (even if they are connected) and returns a value of 150% of full load to the car controller.
	NOTE: This setting is best used when either the load cells are not available or an alternate device/system is used to measure car load.	
4	SEC OFF	Security feature is not available or activated.
	SEC ON	Security feature is available and activated.
5	SPCH ON	COP III exercises the parallel speech board.
	SPCH OFF	COP III does not exercise the parallel speech board (even if it is connected).
6	LWDEF OFF	COP III does not return the default load weight value in case of malfunction. A value of 150% is returned to the car in case of a load weight malfunction.
	LWDEF ON	COP III uses the default load weight information in case of malfunction. This default load weight value is set using the load weight calibration mode.
7	CMON OFF	The current monitoring feature of the COP III is active. The COP III will actively report disabled indicators and outputs.
	CMON ON	The current monitoring feature of the COP III is not active. Faulted indicators are not detected; however the COP III is still protected from damage.
8	SPOVR OFF	Speech messages will not be interrupted when intercom usage is detected.
	SPOVR ON	Speech messages will be interrupted for a period of 1 minute after the end of the intercom usage. This feature requires that SPCH ON is selected.

5.1.2 Local/Remote Selector Switch (SW2)

SW2 allows usage of the remote station board on the COP III.

- **Local:** The remote station board mode switch is ignored. When set to the “Local” position, SW3 and SW4 are used.
- **Remote:** The mode switch and the reset button on the remote station board are used. SW4 on the COP III is ignored.

NOTE: For either SW2 setting, the COP III reset button (SW3) continues to be available.

5.1.3 Mode Switch (SW4)

SW4 is used to select the COP III mode. The various modes are described in Table 5 and covered in later sections.

Table 5: Mode Switch Settings

Mode Switch Position	Mode	Mode Description
0	EEPROM Erase	This is used to erase the EEPROM on the COP III processor board.
1	Current Calibration	This is used to perform current calibration on the swing panel. Current calibration should be performed when the EEPROM is erased, the COP jewels/indicators are modified, or a new processor board is installed. NOTE: The system will automatically perform current calibration if the EEPROM does not contain current calibration data or if that sector of memory is corrupted. Current calibration mode also identifies the currently connected outputs on the swing panel and thus prevents erroneous reporting of faulted open indicators when in normal mode.
2	Button Selection	This allows selection of the master security code and the control buttons used in factory test mode.
3	Field Test	This performs a quick test of the inputs and outputs connected to the COP III. This mode may be used to troubleshoot the system and/or verify the system connections upon installation.
4	Factory Test	This contains a menu to test the key circuits on the COP III.
5	Load Weight Calibration	This performs system load weight calibration. Load weight calibration MUST be performed if the COP III is used to provide load cell data to the car controller. Load weight calibration should be performed when the EEPROM is erased or a new processor board is installed
6	Normal	Normal mode of operation

5.2 Power Up and Verification

The procedure for power up and verification is as follows:

1. Set SW4 to EEPROM erase mode (position 0).
2. Power the system.
3. Ensure that following LEDs on the COP III I/O board are on:
 - 30 V
 - 12 V
 - 12 VA
 - 5 V
 - -5 V
 - TXD
 - RXD
4. Check that the 3.3 V LED on the COP III processor board is on.
5. Verify that the heartbeat LED on the COP III processor board is beating at a rate of approximately two flashes per second.
6. Measure the 30 V, 12 V, 5 V, and -5 V power supplies using a multimeter. The test points located near the top edge of the COP III I/O board are ideal locations for the meter probes. Use Table 6 to confirm the board voltages.

Table 6: Voltage Verification

Meter Negative	Meter Positive	Expected Measurement
GND	30 VF	30 VDC +/- 5%
	12 V	12 VDC +/- 5%
	12 VA	12 VDC +/- 5%
	5 V	5 VDC +/- 10%
	-5 V	-5 VDC +/- 10%

7. Once the voltages have been verified, proceed to the next section.

5.3 EEPROM Erase

This procedure is only required for the first installation of the COP III or when the processor board is replaced.

1. Set SW4 to EEPROM erase mode (position 0).
2. Reset the board by pressing (and releasing) the reset button.
3. Upon power up, the PI will display “EE” to indicate EEPROM erase mode.
4. Press any connected floor button. The PI will display “YN” to indicate if the system should continue with the EEPROM erase.
5. Press the same floor button to continue (pressing a different floor button will exit the erase mode and the EEPROM will NOT be erased). To return to the EEPROM mode, POR the COP III.
6. After a few moments, the COP III will erase the EEPROM and display “OK” on the PI. If the PI displays “E0”, replace the processor board (the EEPROM is corrupted and cannot be used).
7. Proceed to the next section.

5.4 Master Code and Control Button Selection

- **All Applications:** The control buttons must be set and/or identified during the installation.
- **Applications Using Security:** The master code must also be identified.

If switch 4 on SW1 is set to SEC ON, the button selection mode allows the user to select a three-digit master security code and the three control buttons used in the field test and calibration modes.

If switch 4 on SW1 is set to SEC OFF, only the three control buttons can be selected.

When this mode is selected, the COP III operates as follows:

1. Set switch 4 on SW1 to SEC ON.
2. Set SW4 to button selection mode (position 2).
3. Reset the board by pressing (and releasing) the reset button.

4. Upon power up, the PI will display a “1” to indicate that the first position of the master security code is being illuminated, and the corresponding floor input will be illuminated. (For the default master security code, the PI will display “1” and the floor indicator for floor 1 will illuminate.)
 5. The PI will display a “2” to indicate that the second position of the master security code is being illuminated, and the corresponding floor input will illuminate. (For the default master security code, the PI will display “2” and the floor indicator for floor 2 will illuminate.)
 6. The PI will display “3” to indicate that the third position of the master security code is being illuminated, and the corresponding floor input will illuminate. (For the default master security code, the PI will display “3” and the floor indicator for floor 3 will illuminate.)
 7. The COP III will then allow the user to select a new master security code. The PI will display “1” to indicate that the COP III is waiting for the first position entry in the new master security code (to continue with the default master security code, press the first car call button).
 8. The PI will then display “2.” Select the second position entry in the new master security code (to continue with the default master security code press the second car call button).
 9. Next, the PI will display “3.” Select the third position entry in the new master security code (to continue with the default master security code press the third car call button).
 10. With the master security code is complete, the COP III will indicate the existing control button assignment.
- NOTE:** The default control button assignment for the UP, DN and GO buttons is 1, 2, and 3, respectively.
11. The COP III will display the current UP assignment by indicating “UP” on the PI and illuminating the UP button. For the default assignment, floor 1 will be illuminated.
 12. The COP III will display the current DN assignment by indicating “DN” on the PI and illuminating the DN button. The default is floor 2.

13. The COP III will display the current GO assignment by indicating “GO” on the PI and illuminate the GO button. The default is floor 3.
14. The COP III will then allow the user to select a new UP button. The PI will display “UP” to indicate that the COP III is waiting for the user to enter the new UP button assignment (to continue with the default control button, press the first car call button).
15. The COP III will then allow the user to select a new DN button. The PI will display “DN” to indicate that the COP III is waiting for the user to enter the new DN button assignment (to continue with the default control button press the second car call button).

NOTE: The DN button MUST be different from the UP button entered in Step 14.

16. The COP III will then allow the user to select a new GO button. The PI will display “GO” to indicate that the COP III is waiting for the user to enter the new GO button assignment (to continue with the default control button press the third car call button).

NOTE: The GO button MUST be different from the UP and DN buttons entered.

17. The COP III will then store the new assignments into EEPROM memory. Once the procedure is complete the PI will display “OK.”

18. Proceed to the next section.

5.5 Connection Verification

Connection verification can be performed using this procedure.

This procedure will verify COP III input/output connections.

1. Set SW4 to field test mode (position 3).
2. Reset the board by pressing (and releasing) the reset button.
3. If switch 7 on SW1 (settings switch) is set to CMON ON, the COP III will perform an automatic current calibration (current calibration is indicated by “CC” on the PI on power up). The COP III will then sequentially illuminate each floor indicator, followed by the jewels, direction lanterns, and other outputs. The PI will display numbers 1–72 for the 72 outputs controlled by the COP III. At the end of the current calibration, the COP III will automatically reset and enter field test mode.

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4. Entry into field test mode is initiated by an indication of the system errors and warnings on the PI. Ignore the errors and warnings for the first setup procedure.
5. The field test sequence will first toggle all the outputs. This process is as follows:
 - A. The lowest two floor indicator 9-switch PCBAs will illuminate for 2 seconds, then extinguish.
 - B. The middle two floor indicator 9-switch PCBAs will illuminate for 2 seconds, then extinguish.
 - C. The top two floor indicator 9-switch PCBAs will illuminate for 2 seconds, then extinguish.
 - D. The software will illuminate outputs for 3 seconds in the following order:
 - 1) Further Demand Jewel
 - 2) Express Priority Service Jewel
 - 3) Motor Generator Jewel
 - 4) Spare Output 1
 - 5) Spare Output 2
 - 6) Spare Output 3
 - 7) Spare Jewel 1
 - 8) Spare Jewel 2
 - 9) Group Security Jewel
 - 10) Security Jewel
 - 11) Emergency Car Jewel
 - 12) Both Down Direction Lanterns
 - 13) Both Up Direction Lanterns
 - 14) External Buzzer
 - 15) On-Board Buzzer
 - 16) Car Light Fan (LFC) Output

17) All PI Segments

18) On-Board Buzzer (repeat)

19) Speech board is exercised to issue command: "Do not be alarmed, garage floor is full".

Verify that all connected outputs on the panel illuminate this way. If any available outputs do not illuminate, power down the system and re-check all connections.

6. Once all the outputs are toggled, the PI will display "TI," which indicates the inputs are to be tested (test inputs).
7. Once the PI is clear, individually press and release the floor buttons on the panel. For each button pressed, verify:
 - The PI displays the floor number.
 - The floor indicator illuminates.
 - The correct directional lantern illuminates (Up for odd floors; Down for even floors).

These three items should remain on for a few seconds after each floor button press.

NOTE: The floor number on the PI may not match the chicklet on the panel. The floor number displayed is the sequential number of the button (the COP III does not hold contract information) in the six 9-switch PCBA configuration.

Verify that all floor buttons on the panel are successfully read by the COP III. If any are not, power down the system and re-check all connections.

8. After verifying the floor button connections, verify the keyswitch and pushbutton inputs. Refer to Table 7.

NOTE: The PI will display the input while the input is on. If the pushbutton or keyswitch is released, the PI will be clear (to indicate that the COP III can read both the ON and OFF state of the input).

Table 7: PI Display for Keyswitch & Pushbutton Input—Field Test Mode

Keyswitch and Pushbutton Input	PI Display
Independent Service Keyswitch	IN
Car Emergency Keyswitch	ON
Attendant Keyswitch	AT
Hold Door Open Keyswitch	HO
Phase 2 Off Keyswitch (see note below)	OF
Non-Stop Pushbutton	NS
Reset Pushbutton	RB
Spare Input 1	S1
Clear Input Keyswitch	CR
Set Input Keyswitch	ST
Spare Input 2	S2
Motor Generator Keyswitch	MG

NOTE: The PI will only display OF when either the car emergency or the hold door open input is on, to identify any defect in the wiring or the keyswitch used for fire service. For proper installation, the OF display should NOT be displayed on the PI.

Verify that all available keyswitch and pushbutton inputs on the panel are properly detected by the COP III. If any not detected, power down the system and re-check all connections.

9. Proceed to the next section.

5.6 Current Calibration

The system performs current calibration automatically when powered up in any mode after an EEPROM erase. Since the EEPROM was erased as part of the setup sequence, performing the current calibration separately is not required.

5.7 Loadweighing Calibration

Loadweighing calibration is required if the COP III will be used to read the load cells (setting switch set to LDCELL LW). If the COP III will not be used for loadweighing, set the settings switch to LVDT LW and skip this section.

Loadweighing calibration can be performed using this procedure.

This procedure requires two sets of weights:

- 10–15% of the full expected load of the car during normal operation
- 40–60% of the expected full load

1. Set SW4 to load weight calibration mode (position 5).
2. Verify that SW1 is set to LDCELL LW and the correct selection for the 1LDCELL or 2LDCELL position.
3. Reset the board by pressing (and releasing) the reset button.
4. Ignore any errors and warnings that are displayed on the PI upon power up.
5. The load weight calibration procedure will begin with default load weight selection. The PI will display “LD,” followed by “50.”
6. Use the illuminated control button on the panel to change the default load weight value. Press the GO control button to save the selection.

Ward-Leonard Systems: The response of Ward-Leonard systems is relatively slow, so load weight errors can result in significant rollback. Selecting a single fixed default value that works adequately over the full load range is therefore difficult. Thus, the recommended action for Ward-Leonard systems when load weight errors occur is to park the car. This is accomplished by setting the load weight default to “PK”.

Direct Drive Systems: The response of Direct Drive systems is relatively fast, so rollback resulting from load weight errors is tolerable. DD systems function adequately with default load weight values anywhere in the available 10%–65% range. The value selected in this range should be chosen to give better performance at lighter or heavier loads based upon knowledge of the building's traffic patterns.

7. The calibration procedure requires three calibrated weight measurements. The PI will display “LC,” then “0.” This is the 0%, or empty car weight. Ensure that the car is empty and press the GO control button to initiate a ten-second window to allow individuals to exit the car (the buzzer will pulse during this interval). The buzzer will then continuously sound as the COP III performs the empty car measurement.

8. Next, the PI will display “10,” which means the system is ready to perform a low-point measurement. Use the UP and DN control buttons to adjust this range (10–15%). Place 10–15% of the full load weight in the car.
9. Press the GO button and exit the car. Again, a ten-second warning will be issued, and then the buzzer will continuously sound as the COP III performs the low-point measurement.
10. Remove the weight from the car.
11. The PI will then display “50,” which means the system is ready to perform a mid-point measurement. Use the UP and DN buttons to adjust this range (40–60%). Place 40–60% of full load weight in the car.
12. Press the GO button and exit the car. Again, a ten-second warning will sound, and then the buzzer will continuously sound as the COP III performs the mid-point measurement.
13. Once the measurement is complete, the PI will display “OK.” If “NONO” is displayed, the write to the EEPROM has failed, and the EEPROM is corrupted. Replace the processor board.
14. Remove the weight from the car.

5.8 System Verification

This step will establish communication between the car and the car controller. Verify that you have control of the car prior to beginning.

1. Set SW4 (mode switch) to normal mode (position 6).
2. Reset the board by pressing (and releasing) the reset button.
3. Upon power up, note any warnings or errors displayed on the PI. Refer to Section 7 of this TIP for more information.
4. Verify that the load weight display (LD) displays the proper weight. If the load weight was not performed, or if LVDT LW is used, the LD display will read “150.” For LDCELL LW selection, the LD display will show the current load in the car as a percentage of the full load.
5. Verify that the TX and RX LEDs on the COPII I/O board are pulsing steadily.
6. Make a car call to an adjacent landing. Verify that the floor indicator is illuminated and the elevator responds to the call.
7. If security functions are required, refer to Section 5 of this TIP. Otherwise, perform additional car runs to verify proper operation of the COP III. Return the car to normal service when complete.

6 Security Operations

Historically, security operations have been used to allow restrict access to floors to the building tenants. A master security code is required to set up the secure access to the floors. This code is known to the site mechanic and to the building owner. The owner uses the master code to restrict floors to tenants using specific floor codes that may be different from the master.

Security operations and procedures are the same on the COP III as on the COP II. The settings switch must be set to Security On for the security operations to be enabled (refer to Section **Error! Reference source not found.**).

6.1 Viewing and Setting the Master Security Code

The master security code is viewed and changed (if desired) using the control button selection mode of the COP III. To view or change the master security code, set the COP III to control button selection mode and follow the procedure listed in Section 5.4, *Master Code and Control Button Selection*.

6.2 Securing a Floor

Securing a floor restricts the floor until the master security code is entered. When a secured floor is selected, the security jewel will illuminate and a ten-second timer will be started to allow entry of the master security code. If the time runs out, or an incorrect code is entered, the security jewel will extinguish. The floor button must be pressed again to re-initiate the ten-second timer. Successful entry of the master code extinguishes the security jewel and illuminates the floor indicator. The car will then travel to the secured floor.

6.2.1 Activating Security

1. While in normal mode, set and hold the security keyswitch to the SET position.
2. Press the floor button for the floor to be secured.
3. Verify that the security jewel illuminates.
4. Enter the master security code. The COP III allows 10 seconds to enter the master security code before the procedure is reset.
5. Verify that the security jewel is extinguished.
6. Release the security keyswitch.
7. Make a car call to the secured floor.

8. Verify that the security jewel is illuminated.
9. Enter the master security code. The COP III allows 10 seconds to enter the master security code before the procedure is reset.
10. Verify that the floor indicator is illuminated and the car responds to the call.

The procedure is complete and the floor has been successfully secured.

6.3 Un-securing A Floor

“Un-securing” a floor means removing the restriction from a floor so that the floor can be accessed without the master security code or a unique floor code. The car will respond to the floor button as soon as it is selected.

6.3.1 Deactivating Security

1. While in normal mode, set and hold the security keyswitch to the CLR position.
2. Press the floor button for the floor to be unsecured.
3. Verify that the security jewel illuminates.
4. Enter the master security code. The COP III allows 10 seconds to enter the master security code before resetting the procedure.
5. Verify that the security jewel is extinguished.
6. Release the security keyswitch.
7. To verify the procedure, make a car call to the floor unsecured.
8. Verify that the security jewel does not illuminate and the car responds to the call immediately.

The procedure is complete and the floor has been successfully unsecured.

6.4 Activating a Floor That Was Not Previously Deactivated

A floor is considered “secured” (but not activated) when only the master security code restricts access to it.

A floor is considered “activated” when it requires both the master security code and a unique floor code to allow passenger access.

An activated floor is also considered secured. When an activated floor is selected, the security jewel illuminates and a ten-second timer allows entry of the master security code or the unique floor code. If the timer runs out, or an incorrect code is entered, the security jewel will extinguish. The floor button must be pressed again to re-initiate the 10-second timer. Successful entry of the master code or the unique floor code extinguishes the security jewel and illuminates the floor indicator. The car then travels to the secured floor.

6.4.1 Setup

1. While in normal mode, set and hold the security keyswitch to the SET position.
2. Press the floor button for the floor to be activated.
3. Verify that the security jewel illuminates.
4. Enter the master security code. The COP III allows 10 seconds to enter the master security code before resetting.
5. Enter the desired floor code.
6. Verify that the security jewel is extinguished.
7. Release the security keyswitch.
8. Make a car call to the activated floor.
9. Verify that the security jewel is illuminated.
10. Enter the master security code. The COP III allows 10 seconds to enter the master security code before resetting.
11. Verify that the floor indicator is illuminated and the car responds to the call.
12. Make another car call to the activated floor.
13. Enter the floor code.
14. Verify that the floor indicator is illuminated and the car responds to the call.

The procedure is complete and the floor has been successfully activated.

6.5 Activating a Previously Deactivated Floor

A previously deactivated floor may be activated to allow restricted access to that floor.

6.5.1 Setup

1. In normal mode, set and hold the security keyswitch to the SET position.
 2. Press the floor button for the floor to be activated.
 3. Verify that the security jewel illuminates.
 4. Enter the floor security code. The COP III allows 10 seconds to enter the floor security code before resetting the procedure.
 5. Verify that the security jewel is extinguished.
 6. Release the security keyswitch.
 7. Make a car call to the activated floor.
 8. Verify that the security jewel is illuminated.
 9. Enter the floor security code. The COP III allows 10 seconds to enter the floor security code before resetting the procedure.
 10. Verify that the floor indicator is illuminated and the car responds to the call.
- The procedure is complete and the floor has been successfully activated.

6.6 Deactivating an Activated Floor

An activated floor may be deactivated to allow unrestricted access to that floor.

NOTE: Deactivated floors will become active once group security is on.

6.6.1 Setup

1. In normal mode, set and hold the security keyswitch to the CLR position.
2. Press the floor button for the floor to be deactivated.
3. Verify that the security jewel illuminates.
4. Enter the floor security code. The COP III allows 10 seconds to enter the floor security code before resetting the procedure.
5. Verify that the security jewel is extinguished.

6. Release the security keyswitch.
7. Make a car call to the deactivated floor.
8. Verify that the security jewel is NOT illuminated and the car responds to the call immediately.

The procedure is complete and the floor has been successfully deactivated.

6.7 Clearing All Security Settings

All the security settings can be cleared using the following procedures. All codes will be reset and the master code will be set to the default value of 01-02-03.

6.7.1 Setup

1. Set and hold the security keyswitch to the CLR position.
2. While holding the security keyswitch in place, POR the COP III by pressing the reset button on the COP III I/O PCBA.
3. Once the COP III has powered up, release the security keyswitch.
4. Verify that the security clearing process was successful by checking access to any previously secured floor. The floor should now be accessible without the use of a master code or floor code.

The procedure is complete.

7 Errors and Warnings

The COP III uses the same errors and warnings as the COP II. Errors and warnings are displayed on the PI when powering up into normal mode. The error LED on the COP III I/O board further indicates a presence of an error or warning. A steadily on LED indicates that errors are present (warnings may also be present) and a flashing LED indicates that only warnings are present. A non-illuminated LED is the desired state of operation for the COP III and means no errors and warnings were generated.

Table 8: Errors and Warning

PI Display	Message Definition
E0	EEPROM Read/Write Error
E1	Spare
E2	Spare
E3	Indicator disabled due to short/open circuit
E4	Indicator control circuitry malfunction
E5	Failure in security sector of EEPROM
E6	Loadweight reading drifted greater than 10% below empty car
E7	Loadweight calibration not performed
W0	LED indicators have been selected
W1	Spare
W2	Spare
W3	Current monitoring off
W4	Empty car reading is less than 2 mV.
W5	Maximum load cell reading is too high.
W6	Loadweight signal has drifted greater than 6% (but less than 10%) below empty car
W7	Loadweight default switch is off

Appendix A: Part Numbers

The following table lists all part numbers this document mentions.

Table 9: Related Part Numbers

Description	Part Number
9-Switch Button Cable, JA	AAA174JX4
9-Switch Button Cable, JB	AAA174JX5
9-Switch Button Cable, JC	AAA174JX6
COP I to COP III Kit	AAA25000ES4
COP II to COP III Kit	AAA25000ES1
COP III I/O Board	AAA26800AWC1
COP III PCBA Assembly	AAA25000ER1
COP III Processor Board	ACA26800AWD1
Remote Board	AAA26800ABX001