CMP6050

RETROFIT FOR 4000/5000 SERIES CONTROLLER

INSTALLATION INSTRUCTIONS

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SERVICE AND TECHNICAL SUPPORT

Guidelines

Conviron welcomes the opportunity to provide assistance and to answer any questions related to the installation of retrofit hardware.

If problems arise during installation, refer to the relevant section in these instructions and included/original schematics to determine a solution. If further information or assistance is required, please collect the following information prior to contacting Conviron:

- The serial number of the new retrofit control panel assembly.
- A description of the problem.

Some options are not covered specifically by these instructions, and some images and drawings may not correspond directly to your chamber. Call Conviron Technical Support if assistance is required beyond the scope of these instructions.

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PRECAUTIONS

CMP6050 Retrofit installation requires working with high voltages and sensitive electronic equipment. The procedure outlined in this document should only be performed by trained and qualified personnel. Contact Conviron Technical Support for more information (see Page iii).

CMP6050 Retrofit Installation Instructions

Required Parts and Materials:

- ☐ Control panel assembly
- ☐ Retrofit cover panel
- ☐ Control panel bezel assembly
- ☐ Control driver boards
- ☐ Control driver board cables
- ☐ New/replacement sensors
- ☐ Pilaster and light sensor support bracket
- ☐ Retrofit Hardware Package
- ☐ Spiral wire protection wrap
- ☐ Zip ties
- ☐ Tool kit appropriate for servicing Conviron chambers
- ☐ Anti-static wrist strap
- ☐ Schematic #231106: SCHEM-Communicaion Wiring CMP6050
- ☐ Schematic #257349: SCHEM-Main Control, Retro CMP6050 for 4000/5000, 50/60hz
- ☐ CMP6050 Operator's Manual

Procedure:

☐ **1.** Record information programmed into the controller being replaced prior to beginning installation, including:

i. Saved programs

ii. Schedule

iii. Network settings

iv. Alarm Limits

☐ **2.** Disable power to the chamber by turning OFF the main breaker supplying power from building electrical service. If the chamber is equipped with a Uninterruptable Power Supply (UPS), ensure it is also OFF. Switch all breakers in the control panel to the OFF position.

☐ **3.** Disconnect all cables and wires running from the control panel to the old controller being removed. Disconnect at the terminal blocks within the control panel.

☐ **4.** From the rear of the control panel door, locate and remove the existing mounting hardware from the threaded studs. Keep the mounting hardware as it will be re-used to mount the new control panel assembly and retrofit cover panel. Some existing control panel doors are equipped with six threaded studs instead of four.

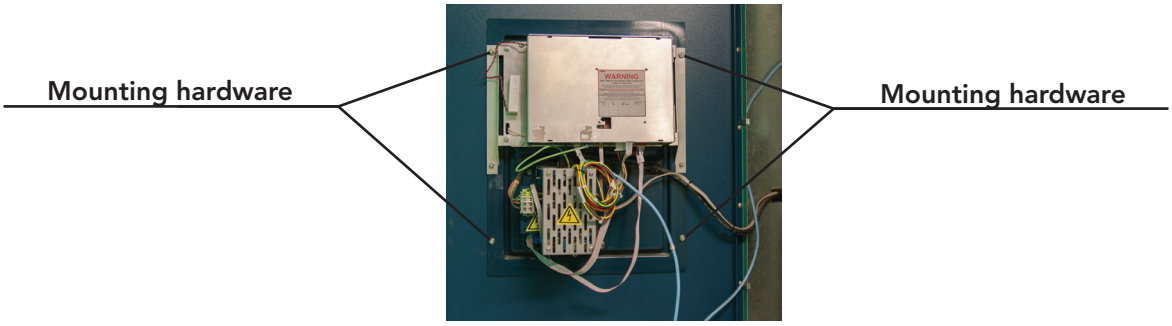


Figure 1

☐ **5.** Remove controller power supply (Figure 2) (if not mounted to existing controller assembly), input board and relay board (Figure 3) along with all associated existing wires. Place input and relay boards in static sensitive packaging. Existing wires may be discarded.

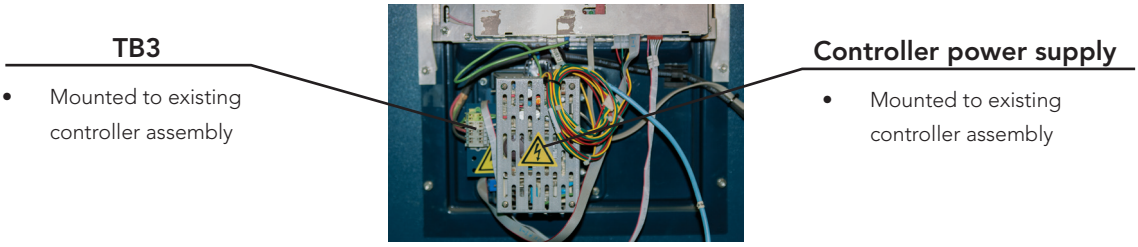


Figure 2

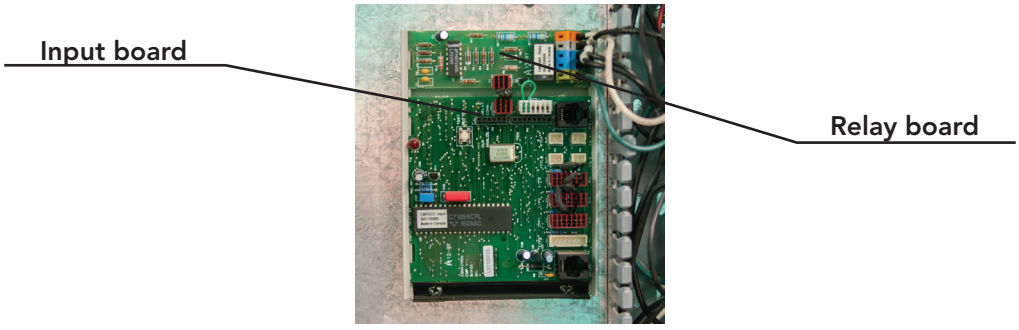


Figure 3

☐ **6.** Locate and remove all controller communications cables (RJ11 modular jacks) from control panel (Figure 4).

Figure 4

☐ **7.** Remove Independent Temperature Shut Off board (ITSO) if installed (Figure 5).

Figure 5

☐ **8.** Remove new control panel assembly and retrofit cover panel from packaging, leaving wires bundled together. Remove any existing sponge tape from rear of control panel door and fit new cover panel to existing cut out (Figure 6). Ensure threaded studs on control panel door match holes in new filler plate. Do not yet mount.

Figure 6

☐ **9.** Using pre-drilled holes (Figure 7), place new control panel assembly on threaded studs after cover panel and mount using hardware removed from old controller panel in step four. Do not over tighten.

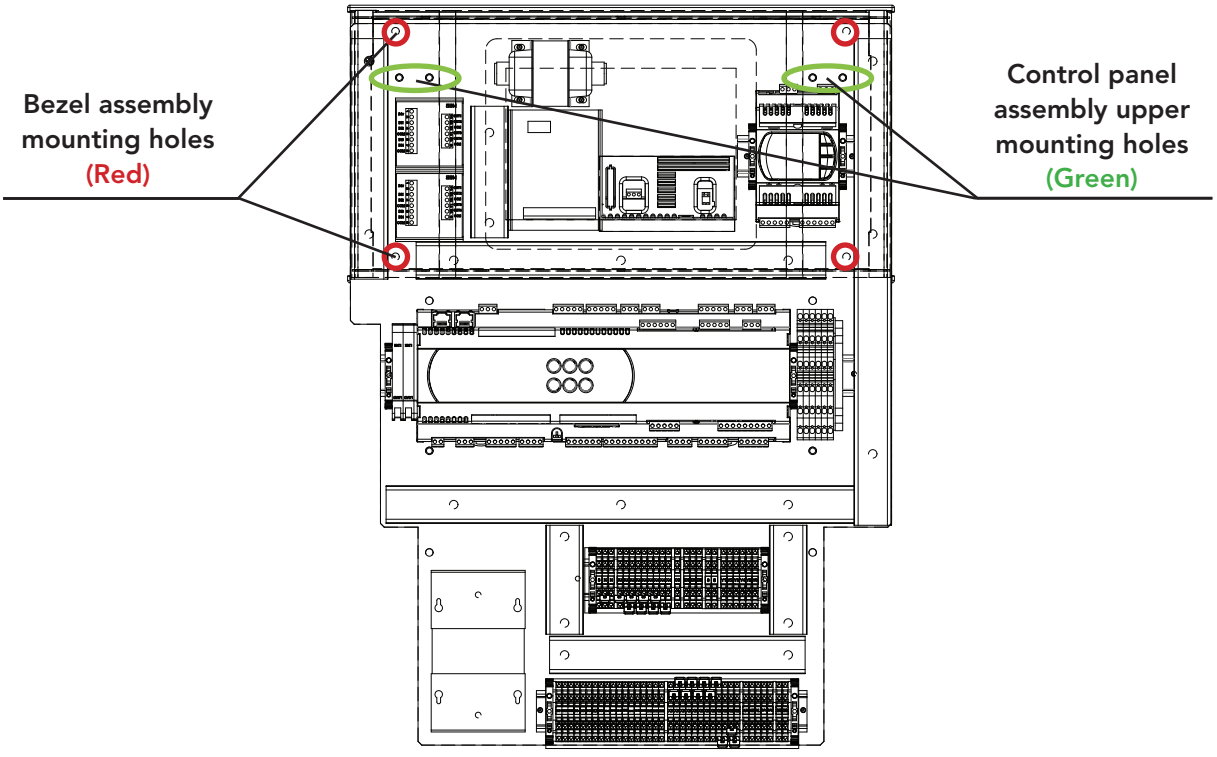


Figure 7

☐ **10.** Locate the four pre-drilled bezel assembly mounting holes on new control panel assembly (Figure 7). Drill through control panel door using a 3/16" drill bit and the bezel mounting holes as a guide.

☐ **11.** Mount bezel assembly to front of control panel door, using #10/32 x 1/2" screws included in the Retrofit Hardware Package. Note: The display, buzzer, and stylus holder will be pre-installed at the factory.

Figure 8

☐ **12.** Release bundled buzzer wires from the rear of the bezel assembly and connect wire labelled X4 to terminal block X4, and wire labelled AL to terminal block AL on the new control panel assembly. If wires are not attached to the rear of the buzzer, connect wire labelled AL to buzzer terminal La, and wire labelled X4 to buzzer terminal N.

☐ **13.** Release upper wire bundle connected to new control panel assembly (Figure 9). Using wire labels and terminal connectors provided, make connections for power and communications to the rear of the display (Figure 10) as shown on schematics **231106** and **257349** page one.

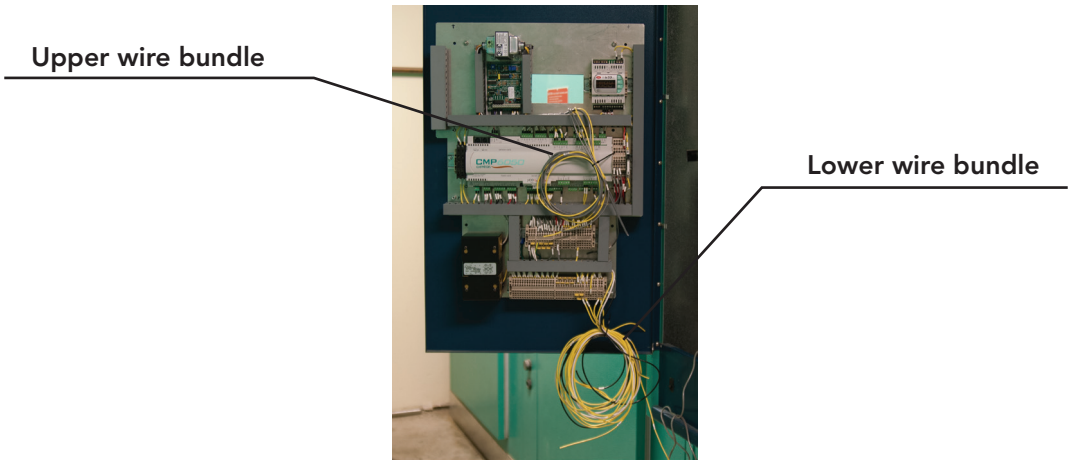
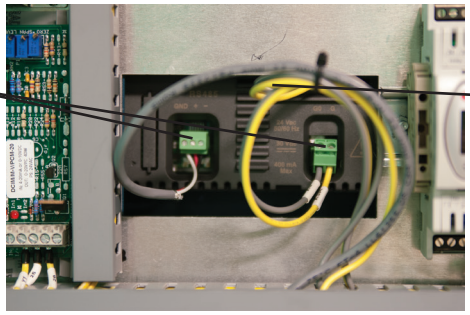


Figure 9

Display connections

- Note: Communication connector must be aligned with socket. If out of alignment, controller will not boot properly.



Buzzer wires

- Wires for buzzer connection routed through opening in control panel assembly.

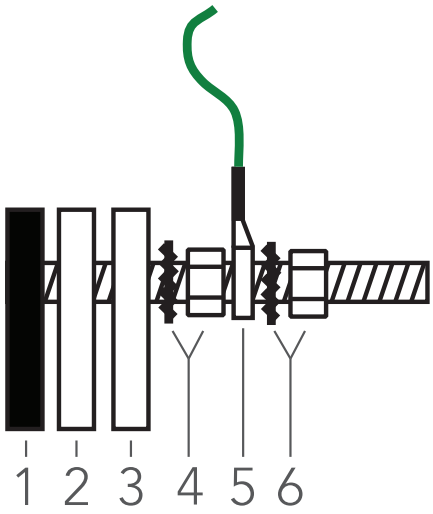
Figure 10

☐ **14.** Release lower wire bundle. Locate wires labelled X3 and ID2 and connect as indicated in schematic **257349** near the bottom of the page. Schematic refers to 'existing components'. See original chamber schematic to determine which option was installed. It will either be:

i. A normally open contact on the contactor, or

ii. A Chamber On Relay (COR).

☐ **15.** From the lower wire bundle, locate the ground wire. Attach ground wire ring connector to threaded stud and secure with additional lock washer and nut (Figure 11). Do not to overtighten.



1 - Control panel door

2 - Retrofit cover panel

3 - New control panel assembly

4 - Star washer and nut

5 - Ground wire ring connector

6 - Star washer and nut

Figure 11

☐ **16.** Following schematics provided for optional chamber features **(257349)**, make connections for all existing chamber options to the control panel. Pay careful attention to wires shown to be removed from original wiring (original wiring indicated by dashed-line boxes).

☐ 

Electrostatic Discharge WARNING

17. Electrostatic Discharge WARNING: Wear included electrostatic wrist guard and observe procedures for handling static sensitive equipment.

Remove all existing control driver boards from output boards (Figure 12 and Figure 13). Remove new control driver boards from static sensitive packaging and connect to control driver board cables hanging from lower wire bundle using attached black plastic connectors (Figure 14). Using labels as a guide, insert all new control driver boards into their respective slots. Use caution not to bend delicate contact pins when inserting driver boards.

Existing driver boards

- Both styles may be present and must be removed

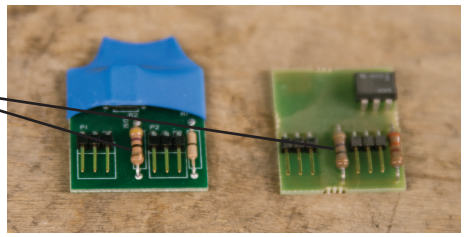
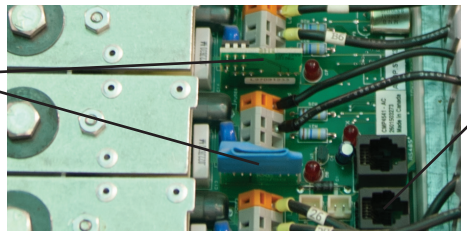


Figure 12

Existing driver boards

- Before removal



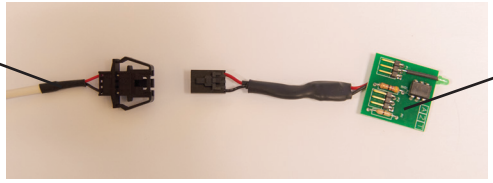
Communication ports

- Communications cables removed in Step 6.

Figure 13

Driver board cable

- With attached female connector



New control driver board

- With attached male connector

Figure 14

☐ **18.** Using original chamber schematics provided, locate existing wire labelled 1 leaving the power supply breaker and follow it to the 1 terminal at terminal block 3 (TB3) (Figure 2). Remove it from the 1 terminal and wire to the 3 terminal and remove wires to the start/stop switch. If use of the start/stop switch is required, run the wire labelled 1 from the power supply breaker to the start/stop switch replacing the wire labelled 2, and remove the wire labelled 2 from the panel.

☐ **19.** Locate the wire labelled 3 from the new control panel assembly and connect it to the existing 3 terminal. Locate the neutral wire (60hz = white; 50hz = blue) leaving the new control panel assembly and connect to the existing neutral distribution block in control panel (see drawing 257349).

☐ **20.** Replace existing sensors and/or add new sensors as required. Chamber type and options will determine which sensors are required:

i. All chambers will require at least two NTC temperature sensors: One for main temperature control in the growth environment, and one for the Independent Temperature Shut Off controller (ir33). To install:

a. Remove existing temperature sensor(s) from aspirator box

b. Install new sensors in aspirator box and route cables for new temperature sensors identically to previously installed sensor(s)

c. Wire new chamber temperature sensor to terminal blocks J4 and JC4 on new control panel assembly 3 pole sensor terminals (Figure 15)

d. Wire new Independent Temperature Shut Off sensor to terminal blocks J5 and JC5 on new control panel assembly 3 pole sensor terminals.

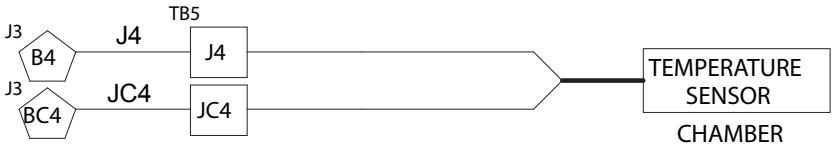


Figure 15

ii. If the chamber is equipped with a humidity sensor, it must be replaced. To install:

a. Remove existing humidity sensor from aspirator box

b. Install new humidity sensor in aspirator box and route cables for new humidity sensor identically to previously installed sensor

c. Wire new humidity sensor to terminal blocks J1, +V and CG (Figure 16) as indicated in schematic **228124**.

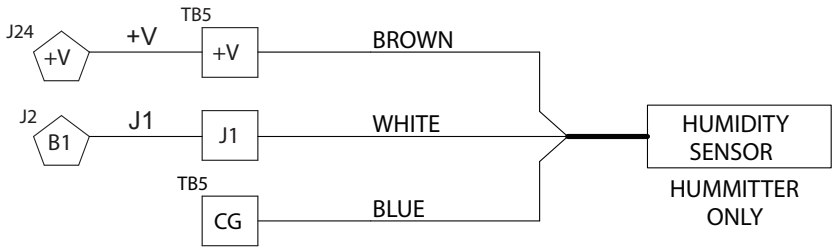


Figure 16

iii. Chambers with light control will require a new light sensor for proper operation. To install the new light sensor assembly:

a. Remove existing light sensor (if applicable)

b. Determine the location of the new light sensor in the chamber. The new light sensor assembly comes with a 48" pilaster and support arm (Figure 17). The distance from the sensor to the light canopy can be adjusted such that the position of the sensor consistently reflects the height of plants in the chamber. To install the pilaster:

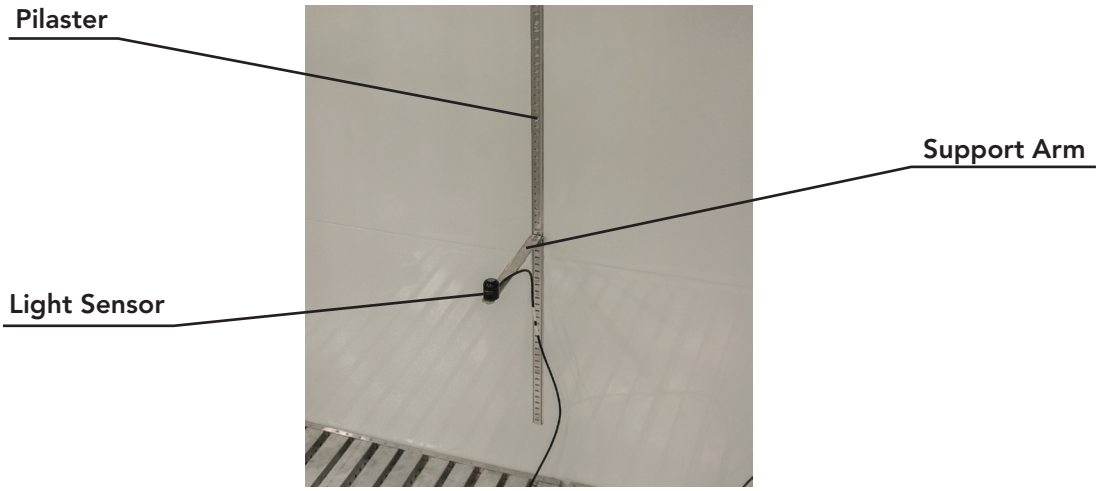


Figure 17

- Determine wall location: the pilaster should be installed on either of the two longer walls in the chamber. The distance from the corner should be one third of the total interior length of the wall on which it is being installed (e.g. in a 6' long chamber the pilaster should be installed 2' in from any of the four corners on either of the two 6' walls). If installing in a larger walk-in room, consult Conviron for assistance.
- Determine height: the pilaster should be installed with its bottom edge corresponding to the lowest point at which plants will be growing. This allows the light sensor to be adjusted to match plant canopy height throughout the plant growth cycle.

c. If drilling through a wall in the control panel is necessary, ensure that:

- There are no objects that could be damaged by the 1/4" drill bit
- The location for the hole is such that sensor wires will not be in the way of moving canopies/shelving
- Supplied 1/4" grommets (Figure 18) are installed to prevent damage to sensor cables.

Figure 18

d. Wire the light sensor to terminal blocks J2, +5V, and CG (Figure 19) as indicated in schematic **228124**.

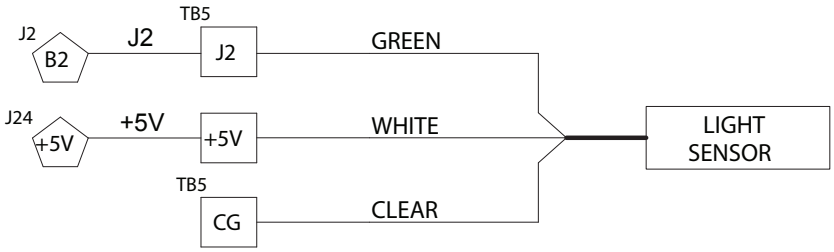


Figure 19

☐ **21.** Neatly group cables/wires connecting the new control panel assembly and the old control panel. Cover grouped cables/wires with the included protective spiral wrap as shown. Using existing clip(s) or supplied adhesive wire guides, ensure the cable/wire bundle is secured near the hinge of the control panel door and not hanging loosely in the control panel. All wiring should now be complete.

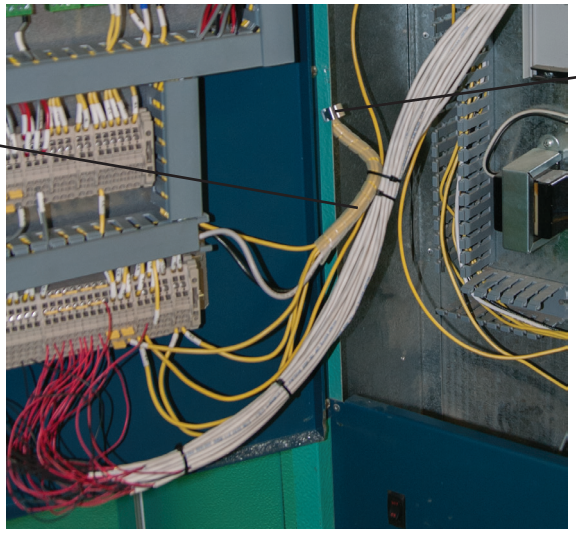


Figure 20

☐ **22.** Using a continuity tester or multimeter, run a continuity test from the 3 terminal on the new controller panel assembly to both neutral and ground. NO continuity should be found.

Important

☐ **23.** Ensure all breakers (main power supply and sub-breakers) are still in the OFF position. Return power to the chamber by turning ON the main power supply breaker from building electrical service. Ensure that ON/OFF switch is in the OFF position if being used. Turn chamber power supply sub-breaker ON and observe the controller display as it boots. If the controller does not boot to the Select Chamber screen, check the wiring and terminals at the rear of the display. Ensure wiring is correct and the terminal connectors are properly inserted into their corresponding receptacles.

☐ **24.** If the display still does not boot properly after re-checking power and communication connections, call Conviron Technical Support (see Page iii).

☐ **25.** Switch all sub-breakers in the control panel to the ON position and begin the commissioning procedures required to verify chamber operations.

☐ **26.** The configuration file uploaded to the controller at the factory is specific to the chamber in which the CMP6050 retrofit control panel is being installed. To confirm the correct file has been uploaded, tap the information icon  in the upper left corner of the main status screen to view the serial number for which the controller configuration file was programmed (if the information icon is not visible, tap the exit icon  as necessary to return to the main status screen). Ensure that the serial number at the controller matches the serial number on the exterior of the chamber. If it does not, contact Conviron Technical Support (see Page iii).

☐ **27.** Input information retrieved in Step 1 to the new CMP6050 controller. The chamber is now ready to be used.

(END)

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