Dynamic V8 Start-up & Maintenance Procedures

I. Physical Inspection prior to Start-up:

1. Check that all units are sealed to prevent bypass including the area surrounding the Dynamic V8 modules as well as the horizontal joint between the individual modules (12” or 18” in height). Blue extruded rails and brackets are shipped with each system to seal between the modules (figure 1).

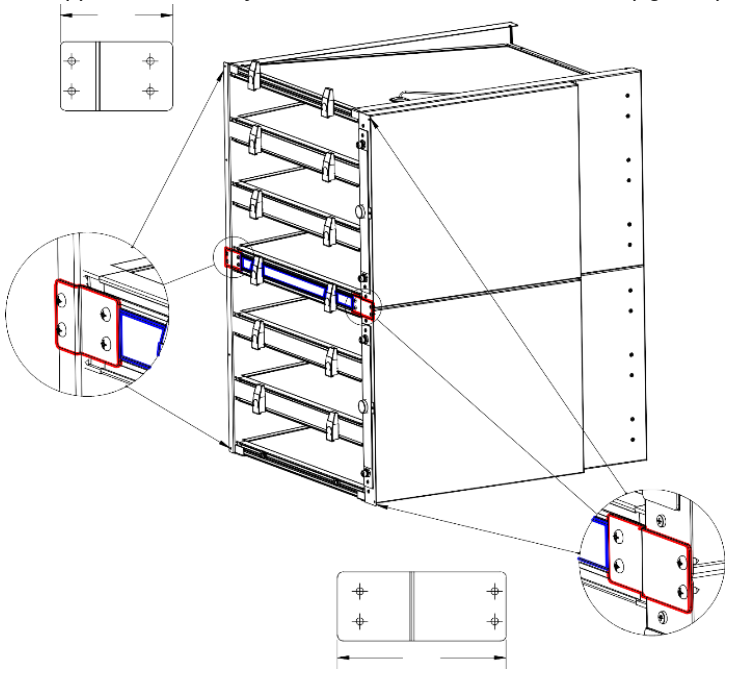

Figure 1

2. Check to make sure all modules have Dynamic V8 media pads in place and all latches are closed. Ensure that the modules are correctly oriented for either upstream or downstream servicing. Modules are serviced from the latch side.
3. It is important to note that Dynamic V8 media pads are directional in terms of airflow. The placement of the media pads is different, depending on whether the modules are serviced from the upstream side or the downstream side. For further information, refer to Section VI – Media Replacement.
4. In a typical V8 installation, line voltage runs through the access door safety switch, then to the control panel and from there to the air cleaners. The control panel output voltage is 24Vac. There are jumpers that take the power from module to module and then a return wire that indicates continuity. Refer to the

wiring diagram for the job in the Dynamic V8 submittal. If the diagram is not available, contact Dynamic for job specific information.

5. Visually inspect all wiring.
6. Check to make sure the access door safety switch is installed.

Note: The air cleaning system cannot be powered on if the switch is not wired to the panel. If there is no door switch installed, you must connect a jumper between terminals 3 & 4 on the control panel terminal strip.

7. If a NEMA-rated outdoor enclosure is required, check to make sure all water proof connections are tight.
8. Make sure all the wiring harness connections to the control panel or other 24-volt power supply are correct per the wiring diagram shipped with the system and that the installation is properly grounded.
9. Check that the incoming line voltage to the control panel is properly fused (maximum 20-amp circuit is recommended) and that the incoming line power matches the amperage and voltage specified on the power supply.

II. Differential Pressure Transmitters:

1. Ensure that dip switches 4 & 5 are both set to ON and the display is reading in Inches w.g. as shown in figure 2.
2. Ensure that dip switch 1 is set to OFF and dip switch 2 is set to ON, so the Full-Scale Pressure Range is set to 2" w.g.
3. If you are wiring the pressure transmitter into a BAS panel for remote monitoring, refer to the Pressure Transmitter Operation Manual shipped with the air cleaning system for the field-selectable wiring and dip switch settings.
4. Zero calibrate the gauge by applying zero pressure to both the pressure ports and pressing the zero button for 3 seconds. The display will read Zero and then sequence back to the home display.

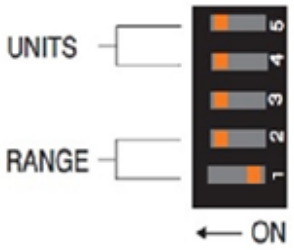

Figure 2

III. Powering up the Air Cleaners:

1. The number, size, and configuration of the control panel(s) or 24Vac source for the Dynamic V8 modules will be job specific. Refer to the wiring diagram provided with the control panel.
2. Turn on the main supply providing incoming power to 24-volt transformer/control panel. All LED lights should come on when powered up. On the CP-100 and CP-300 control panels the power switch will light up indicating the panel is receiving the line voltage input; the panels will have 1-3 blue LED's depending on the number of module circuits. The blue light is the air cleaner status indicator and shows that the electrical connectivity between all the modules is operating properly. If any of the LED lights are inoperable, power down the system and check the electrical connections. If the problem persists when the equipment is restarted, contact Dynamic Air Quality Solutions.
3. Check the output from the transformer/control panel and verify it is 24Vac minimum.
4. With power on and all LED lights operating, visually inspect the individual air cleaner modules from the access side and ensure the blue power indicator lights are on.
5. Check operation of the Magnesense Pressure Transmitter to determine the initial static pressure drop through the Dynamic system. Record the initial static pressure drop and date the unit has been placed into service. This information should be maintained in a log at the air handler and used to facilitate appropriate change-out of V8 replacement media. Check the Dynamic submittal for the recommended

final static pressure drop and note it in the log. If this information is not available, contact Dynamic Air Quality Solutions (800) 578-7873.

6. If the system is connected to digital readouts that monitor static pressure drop through the automated building control system, take initial S.P. drop readings mechanically and verify that the digital readouts are calibrated properly.

IV. Troubleshooting:

1. **Power Switch on the control panel is not illuminated:** This is most likely due to a loss of line voltage to the control panel. Check the line voltage input to the panel. Verify the input voltage indicated on the wiring diagram on the inside of the control panel is correct.
2. **Blue return indicating light(s) on the control panel is not illuminated and all the blue power indicating lights on the air cleaner modules not illuminated:** Verify that the access door limit switch is connected to the terminal strip (Terminals 3 & 4) and is making contact when the door is closed.
3. **Blue power indicator lights on one or more modules are not illuminated:** Check the electrical connections, ensuring that the keys in the male wiring connectors are seated in the slots in the corresponding female connectors.
4. **All the blue indicator lights on the modules are lit, but the blue return indicator light(s) on the control panel is not illuminated:** Check the wiring connection between the control panel and the last module in the system. If the blue indicator light(s) still fail to illuminate, check that the 24-volt supply wires (S1, S2, S3) and 24-volt return wires, (R1, R2, R3) are connected to the corresponding terminals on the bottom of the control panel enclosure.
5. **Red or Green indicator lights on the modules are flashing slowly:** The red/green lights on the modules indicate the functioning of the high-voltage power supply. The high-voltage power supply has an internal smart chip that will shut down the power supply for several seconds if the current draw increases above a certain threshold. This is a standard feature on high voltage power supplies to prevent a sustained short.
   If this condition occurs immediately after a media replacement, it is likely the result of a damp media pad(s) or media pads that have been misaligned or installed backwards.
   If this condition occurs during normal operation, the most common cause is moisture; possibly from a leak, entrainment of rain or snow, or a high percentage of outdoor air with very high humidity. Under these circumstances, once the media pad(s) dry out, indicator lights will return to solid “on”.

V. Maintenance:

1. Dynamic V8 media pads have an exceptionally long life compared to standard passive filters. Therefore, it is recommended that Dynamic V8 media pads be changed at a pressure drop set point, rather than a specific time interval. Although Dynamic V8 Air Cleaning Systems can withstand pressure drops well over 2.0”w.g., from the standpoint of energy savings, it is recommended that the media be changed when the pressure drop has increased to 0.40” to 0.50”w.g. above the initial static pressure recorded at start up. Dynamic V8 media pads will typically last between 3-5 years in most applications.

VI. Media Replacement:

1. Dynamic V8 media pads are directional in terms of airflow. The overall process for changing the media pads is the same for both upstream and downstream orientation, although, the media pads are positioned differently as shown below.
2. Prior to any service or maintenance, make sure the air cleaner control panel is switched “off” and the AHU fan is deactivated.
3. Wear a dust mask and eye protection.
4. Make certain that the replacement media pad size matches the size listed on the control panel and on the individual air cleaner modules.
5. Each media pad has one side of the frame that is either **red** or **blue**. For each module, you will need an equal number of replacement media pads with red and blue plastic frames.

6. It is generally easier to do one air cleaner module at a time, working your way down a column of modules. Modules consist of four or six Panels arranged in two or three “V”s. The replacement process is easier when both Panels of a “V” are unlatched and free to move.
7. Each media pad contains a high-voltage contact disc that must be properly oriented. This is a metallic disc, approximately ½” in diameter, that will contact the high-voltage terminal probe mounted to the stationary screen of the air cleaner when the frames are closed.

> Find the link to a brief instructional video “Dynamic V8 Replacement Media Video” can be found in the left margin at *www.DynamicAQS.com/V8*.

8. Determine whether the air cleaner modules will be serviced from *upstream* or *downstream*.
9. To remove the loaded media pads: Starting at the first module, unlatch and open the aluminum media pad frames and carefully remove the pads. On most models, frames can be partially or completely removed to aid in media pad replacement. On some early models, the movable frame is hinged and attached to the Module. In this case, the media pad must be pulled out by the corners of the frame while working the media pad from side to side.
10. **As noted above, when installing new media pads, the orientation of the red and blue side of the frames and the high-voltage contact disc are critical.**
11. To install the new media pads: Working one module at a time, insert the bottom media pad into the removable frame. Make certain that the media pad is securely seated in the frame. Slide both the media pad and frame into place. Do the same with the top media pad. Do not close any of the latches until all the media pads have been replaced.

Service from Upstream Side

Bottom media pads will have **red** frames and top media pads will have **blue** frames. The colored side will always face the stationary frame of the module. Install media pads as shown below (Figure 3 & Figure 4).

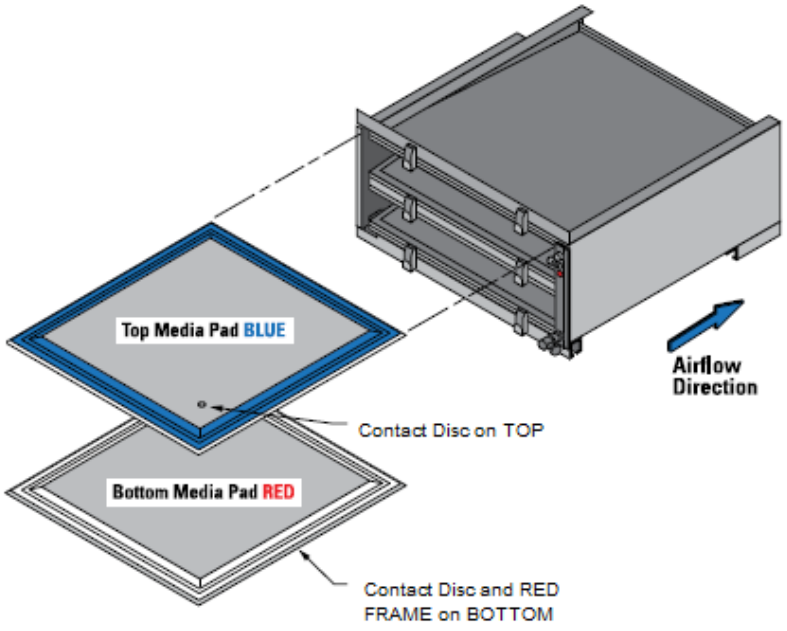

Figure 3 – Media Pad Orientation - Upstream Service

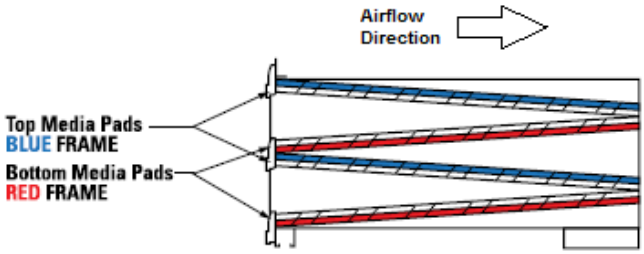

Figure 4 – Side View - Upstream Service

Service from Downstream Side

Bottom media pads will have **blue** frames and top media pads will have **red** frames. The colored side will always face away from the stationary frame of the module. Install media pads as shown below (Figure 5 & Figure 6).

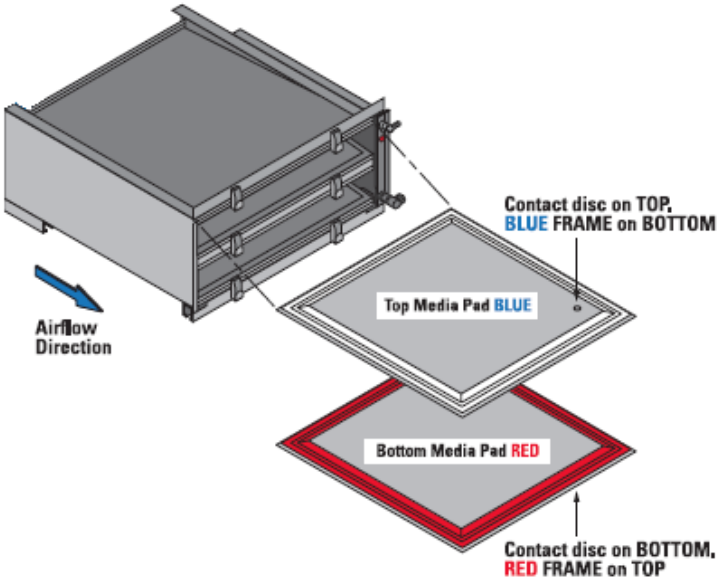

Figure 5- Media Pad Orientation - Downstream Service

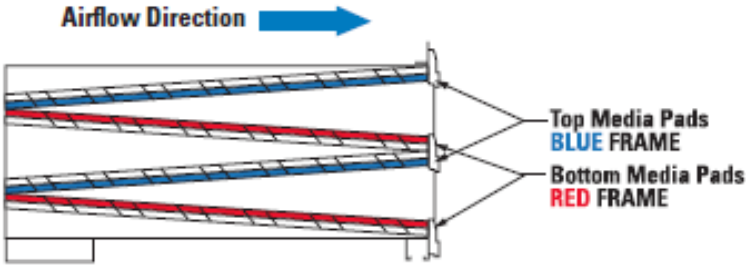

Figure 6 – Side View - Downstream Service

12. To install the new media pads: Working one module at a time, insert the bottom media pad into the removable frame. Make certain that the media pad is securely seated in the frame. Slide both the media pad and frame into place. Do the same with the top media pad. Do not close any of the latches until all the media pads have been replaced.
13. Once all media pads have been replaced, close the latches, working from the top of the section to the bottom.
14. When the media changeout in the AHU is complete, and prior to start-up, note the system static pressure and calibrate differential pressure gauges to zero. To calibrate a Dwyer digital differential pressure gauge::
    a. Disconnect the tubing from both pressure ports.
    b. Remove the cover from the pressure gauge and press the zero button for 3 seconds. The display will read “Zero” and then sequence back to the home display.
15. Reactivate the AHU fan and turn the control panel to “On”.

VII. General Notes

- **Vacuuming:** If there a noticeable buildup of debris or large particles on the screens, the surface may be vacuumed off the surface without opening the air cleaners. To prevent damage to media pads, it is recommended that media pads NOT be removed for cleaning. A long flat nozzle, such as the type used to vacuum condenser coils, works best as it can reach all the way to the back of the “V”s. Be sure to turn off the air cleaners at the control panel before performing any maintenance.

- **Prefilters:** Most Dynamic V8 applications do not require prefilters during normal operation. However, if the air cleaners are operated during a construction phase, to ensure maximum media life, a MERV 9 or equivalent prefilter should be used to protect the system.

- **Ordering Replacement Media Pads:** When replacement media pads are required, contact your Dynamic Authorized Representative or contact Dynamic Air Quality Solutions directly at (800) 578-7873. All replacement media pad size and quantity requirements are maintained by job name and location.

⚠ **Warning: Operating the system without power will impact the air cleaning systems performance, shorten the life of the media and potentially cause static pressure issues.**

For technical support, call 1-800-578-7873, or e-mail info@DynamicAQS.com.

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