

Half-Octant Assembly

A note before I begin. This document was written out of the experience of assembling a Prototype D, Station 3 half-octant with empty modules. It is partially based on prospective problems that might occur because of weight, wires, and too-small tolerances. This document should be re-written or modified after a half octant has been fully assembled with full half octants.

1. Preparation
 - a. Modules
 - i. Verify that all of the honeycomb screws are either flush or sub-flush so they will not catch on the alignment brackets later on
 - ii. Dress cables
 - b. Half-Octant Frame
 - i. Ensure the half octant is lying completely flat on a surface
 - ii. Remove the aluminum face plates (next portion optional) so the most modules are on the bottom (with the side the face plates were removed from being the top)
 - iii. Keep the different types of bolts separate from each other
 - iv. Unscrew the bolts connecting the outer bulkhead corner pieces and the two sides (octant and half octant) so that the corner pieces come with the outer bulkhead when it is removed
 - v. Remove the S-braces and the braces for module C
2. Installing Modules
 - a. The installation process will be very similar for each module. If the module gets jammed at any point, remove it and go over step one again for that module and the half octant.
 - b. At all times, support the outer radius of the module so it can go in flush
 - c. As the octant side gets closer to its place, make sure it gets up onto the shim (or onto the brace if the module is on the top)
 - d. Make sure the module goes all the way into the braces. It will be very tight
 - e. Put the next set of braces in
 - i. Line up all bolt holes (this will take some maneuvering)
 - ii. Some wires and lines may be in the way. Gently shift them as much as you can to where they interfere as little as possible
 - iii. Bolt down the bracers
 - f. Run all cables to the inner bulkhead for connection later
 - i. Run the high and low voltage wires to the octant side and then down to the inner bulkhead
 - ii. Run the ribbon cables to the half octant side and then down to the inner bulkhead
 - iii. Run the gas lines down the middle to the inner bulkhead
3. Re-attach the outer bulkhead
4. Patch Panel Connections
 - a. Unbolt and remove the inner bulkhead.
 - b. Attach the gas connectors (middle)
 - i. Attach the in on the left set of six and the out on the other
 - ii. Attach the lines for module A at the top, module B in the middle, and module C at the bottom
 - iii. Place the gas line for the top gap of each module on the left of its set (for example, the gas lines on the top row of holes should be in this order from left to right: A top gap in, A bottom gap in, space, A top out, A bottom out)
 - c. Attach the low voltage
 - d. Attach the ribbon cables
 - i. Attach module A cables on the left, module B cables in the middle, and module C cables on the right

- ii. Arrange them in order so that the cable that corresponds to the card for channels 1-16 is on top, 17-32 is second to top, 33-48 is second to bottom, and 49-64 is bottom
 - e. Attach the high voltage lines in the same manner as the gas lines (without the In/Out division)
 - i. Left, top gap; right, bottom gap
 - ii. Top, module A; middle, module B; bottom, module C
 - f. Reconnect the inner bulkhead
 - 5. Re-attach the aluminum face plates.