Hybrid Rocket Assembly Instructions

Required Equipment (Supplied By the Host)

1. Oxygen tank and regulator
2. 110 V power source and extension cord as needed
3. Test table
4. Fire Extinguisher

Assembly Procedure

* Note: Tighten screws 5-10 in-lbs

1. Remove components from case
   a. Remove tools, plumbing, rocket assembly, test stand, diffuser plate, fuel grain, and nozzle
   b. Ensure to remove the electronic box last
   c. Position the components to be assembled
2. Assemble the rocket
   a. Disassemble top and bottom plate from the struts
   b. Insert diffuser into the top plate, countersink towards the fuel
   c. Insert fuel grain into the countersink of the diffuser
   d. Place Teflon washer in between the fuel grain and the nozzle
   e. Keeping the rocket assembled, place the bottom plate over the nozzle and secure to the struts using the supplied Allen machine screws
3. Screw ignition assembly to the top plate
4. Connect ‘quick-connect’ oxygen line from the flow controller to the ignition assembly
5. Secure rocket assembly to the test stand by means of Allen set screws
6. Tighten stainless steel swivel joint located between the flow controller and pressure gauge
7. Secure test stand the table by means of a C-clamp
8. Connect the wiring
   a. Many ports on the electrical box are clearly labeled
      i. Stain gauge, pressure transducer, flow controller, power cable, ‘dead man’ switch, solenoid valve, and USB cable
9. Attach regulator to oxygen tank
10. Connect oxygen line from flow controller to regulator
11. Ensure that all fittings and lines are secured tightly
    a. Tighten swivel joint on the upstream and downstream side of the controller
12. After the flow rate has stabilized, attach the two alligator clips to the fuse leads
**Electrical Set Up**

**Disassembly Procedure**

1. Turn off main oxygen valve on the bottle
2. Vent excess oxygen from the manual vent
3. Allow rocket to cool
4. Using gloves, disassemble rocket
   a. Disconnect the quick connect line from the ignition system
   b. Remove rocket assembly from the test stand
   c. Remove ignition assembly from the top plate
   d. Disassemble rocket assembly
      i. Remove diffuser, fuel, Teflon washer, and nozzle
ii. Attach the bottom plate to the struts and top plate to be stored
5. Disconnect all wires and roll them up
6. Disconnect oxygen line upstream of the flow controller
7. Loosen the stainless steel swivel joint downstream of the flow controller for storage
8. Replace the spent fuse with a new one
9. Replace all components into the case,
   a. Ensure that the electrical box goes in first
      i. Place the electrical box with the feet into the side of the case and cables towards the test stand.