

# Defender CCR Detailed Functionality Checklist

(After having completed the full assembly checklist)

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1.  **Mushroom Valve Check**
2.  **Check Remaining Scrubber Duration**
  - A. Re-pack scrubber if needed
  - B. Reset stack timer to appropriate time
3.  **Install Analyzed + Labeled Gas Cylinders**
4.  **Negative Pressure Test (hold for 1 minute minimum)**
  - A. Open BOV
  - B. Inhale from BOV in CC mode, exhaling through nose until counterlungs are fully collapsed
  - C. Close BOV
  - D. Allow to sit for one minute (minimum); watch for signs of leaks.
5.  **Positive Pressure Test (hold for 1 minute minimum)**
  - A. Close OPV
  - B. Fill loop fully until OPV vents
  - C. Allow to sit for one minute, watch for signs of leaks
  - D. Open BOV to release pressure, close BOV
6.  **Diluent & Oxygen System Leak Test (hold for 30 seconds minimum)**
  - A. Open diluent & oxygen cylinders slowly allowing hoses to pressurize, close valves
  - B. Watch pressure gauges for pressure lost for a minimum of 30 sec
  - C. Open diluent & oxygen cylinders
7.  **Turn On SG-1 & Secondary**
  - A. Change to MANUAL Setpoint
8.  **Flush Loop with Oxygen (3 times)**
  - A. Slowly open oxygen cylinder
  - B. Close BOV
  - C. Fill loop with oxygen until OPV vents
  - D. Evacuate loop fully
  - E. Repeat steps A & B, 2 more times
  - F. Open and close the BOV to bring loop to ambient pressure
9.  **Check Calibration**
  - A. Check for appropriate PO<sub>2</sub> (considering altitude)
  - B. If needed, perform calibration according to user manual
  - C. Check mV readings (acceptable: 40mV or greater in 100% oxygen at sea level)
10.  **Check ADV, BOV, and Power Inflator**
  - A. Inhale from BOV (being cautious if using a hypoxic diluent)
  - B. Open BOV, inhale from loop until ADV engages (if equipped), dropping loop PO<sub>2</sub>
  - C. BCD Inflation + deflation mechanisms / air holding

**11. ○ Check Solenoid & Wrist Display Battery**

- A. Change SG-1 to LOW setpoint
- B. Solenoid fires, O2 injection verified
- C. Change SG-1 to MANUAL setpoint
- D. Check battery status for both SG-1 & Secondary
- E. If less than 3.7v, recharge before continuing

**12. ○ Pre-Breathe (5 minutes)**

- A. Change SG-1 to LOW setpoint
- B. **Block nose** and begin breathing from the Defender CCR (in a safe location/position)
- C. Observe setpoint maintenance and HUD functions
- D. Pay close attention to how you feel as well as how the CCR is functioning for a full 5 min

**If Diving Immediately:**

Continue with “Pre-Dive Checks”

**If NOT Diving Immediately:**

Close O2 + diluent cylinder valves, drain hoses, turn off electronics, and secure unit

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**Pre-Dive Checks:**

13. ○ Proper weighting?

14. ○ HUD and wrist displays on?

15. ○ Tank valves open?

16. ○ Verify setpoint and loop contents

17. ○ Don the Defender CCR

18. ○ CCR Pre-Jump Drill (see card, provided with unit)

1. Begin Breathing Unit
2. Check: ADV, BOV, Oxy MAV, Dil MAV; Wing & Drysuit Inflator
3. Check SPGs: Oxy, Dil; OC Bailout
4. Observe Setpoint Maintained
5. Enter when ready
6. Complete S-Drill
7. Remember CCR Diving Rule #1: **Always Know Your PO2!**

