

TCS-100 CASCADE TRANSFILLING SYSTEM

Operational Instructions

The following procedure outlines the basic cascade transfilling procedure. These steps will help ensure against possible injury and no deviation in the process should be attempted. **Note:** System includes an inline restrictor valve automatically limiting the filling pressure to a maximum of 200 psi /min. **Warning!** System **MUST** be vented prior to removal of either supply cylinders and / or refilled cylinders. **Warning!** All supply manifold, cylinder and transfill head valves should be opened **SLOWLY**.

1. Ensure all valves are CLOSED prior to attachment of cylinder(s) to be refilled.
2. Attach destination cylinder(s) to be filled via either CGA-870 Yoke whip connection and / or CGA-540 Hand-Tight whip connection.
3. Rotate Supply Cylinder # 1 post valve counterclockwise to open.
4. Rotate Supply Manifold valve # 1 counterclockwise to open.
5. Rotate Master Supply Manifold Shutoff Valve (A) counterclockwise to open.

Supply Cylinders contents pressure will be displayed on Supply Side Regulator's Gauge Face.

6. Rotate Pressure Regulator Knob **clockwise** to increase or **counter-clockwise** to decrease destination cylinder(s) maximum filling pressure while observing displayed filling pressure on regulator's destination cylinder(s) filling gauge face. Limit the set filling pressure to destination cylinder(s) stamped maximum approved "psi" rating.
7. Rotate CGA-870 and/ or CGA-540 Fill Whip Valve **counterclockwise** to open.
8. Open Post valve on destination cylinder(s). Cylinder(s) should begin filling..

(Maximum Fill Rate allowed by system is 3.3 cfm)

9. If supply cylinder pressure equalizes with destination cylinder pressure prior to completion of fill, close supply cylinder post valve and perform the following.
 - A) Close Destination Cylinder Post Valve.
 - B) Open Venting Valve to release residual pressure from system.
 - C) Observe Zero (0) pressure on system pressure gauge before closing venting valve.
 - D) Close Supply Cylinder Manifold Valve.
10. Open Supply Cylinder # 2's post valve counterclockwise.
11. Open Supply Manifold Valve # 2 counterclockwise.
12. Open Destination Cylinder post valve and continue to fill destination cylinder(s). Repeat steps 5 thru 12 as necessary with supply manifold valves #3 & #4 & supply cylinders #3 & #4.
13. Once maximum fill pressure has been obtained in destination cylinder(s), close supply cylinder(s) post valve.
14. Close Destination Cylinder post valve.
15. Open Venting Valve to release residual pressure from system.
16. Observe Zero (0) pressure on system pressure gauge before close venting valve.
17. Close Destination cylinder(s) outlet fill whip valve(s).
18. Detach destination cylinder(s) from transfill whips.
19. ALWAYS Rotate regulator pressure control knob **counter-clockwise** until loose when not in use.

Warning! Failure to vent the system as described may result in damage to destination cylinder fill whip inlet filters)