

SOP FOR CHARGING OF CRA USING CRU
(REF TM FMS-CRU-MAINT-13)

1. Perform DI, check all hoses are fitted properly, check maintenance due and connect CRU electrical power cord to facility power receptacle. Wear glasses for eye protection.

2. Attach snap-hook on HP hoses safety lanyard to eyebolt on CRU.

3. **PURGING**

(a) Open argon source bottle control valve slowly to allow a low flow of argon and purge source bottle outlet and inlet HP hose (approximately three seconds). Close argon source bottle control valve.

(b) Securely hold outlet HP hose, point open end upward toward a clean, open area.

(c) Turn INLET CONTROL valve counter clockwise to OPEN. Turn OUTLET CONTROL valve counter clockwise to CHARGE and allow flow of argon to purge HP hose (approximately three seconds).

(d) Turn OUTLET CONTROL valve to SHUTOFF. Turn INLET CONTROL valve to SHUTOFF.

4. **CHARGING CRA**

(a) Install CRA into diffusion chamber with forward end (with yellow protective cover) on the left side. Loosen screw on CRA fill port cover to relieve pressure. Remove fill port cover from CRA Schrader valve. Install fill and bleed valve onto CRA Schrader fill valve hand tight. Align port of fill and bleed valve so it points out and toward the front. Rotate fill and bleed valve knob clockwise until gas is heard escaping from the valve. Rotate fill and bleed valve counter clockwise to close valve. Remove protective plug from HP hose. Secure latches on CRA clamps by turning locking tab 1/4 turn CW. Close diffusion chamber door and ensure latches are properly secured.

(b) When a CRA requires topping off, follow the typical charging procedures with one exception: prior to turning on the electric motor to begin the boost cycle, the UNLOADER VENT valve is turned to VENT until the BOOSTED PRESSURE gauge indicates less than 3500 psig, and then is turned to SHUTOFF. This relieves system pressure between the booster pump and the molecular sieve filter. The START/STOP switch is then turned to START position, and the unit continues with normal charging operation.

(c) Ensure source argon bottle control valve is open. Ensure INLET CONTROL valve is in OPEN position. Turn OUTLET CONTROL valve to CHARGE position. Turn CRU start/stop switch clockwise to START position. The CRU will automatically shut off when the pressure switch preset pressure of 6000±200 psig is sensed. **If not, then manually switch it off at 6200 psi.**

(d) When argon is compressed into CRA, heat is generated and CRA will become warm. As CRA cools to ambient temperature, CRA internal pressure will

decrease. This is normal. After cooling, the CRA may be "topped off" refer to Paragraph 4(b).

(e) **Wait five minutes** to allow the CRA temperature to cool to ambient temperature prior to removal.

5. **CRA REMOVAL**

(a) Turn OUTLET CONTROL valve to SHUTOFF position. Ensure fill and bleed valve is closed (knob turned fully counter clockwise). Ensure UNLOADER VENT valve is in SHUTOFF position. Turn OUTLET DRAIN valve to DRAIN position to vent outlet hose. Remove outlet HP hose from fill and bleed valve.

(b) Turn OUTLET DRAIN valve to SHUTOFF position. Open diffusion chamber door. Remove fill and bleed valve from CRA. Store fill and bleed valve in storage compartment.

(c) Install fill port cover on CRA Schrader (fill) valve. Torque cover to **36±12 in-lbs**. Tighten vent screw on fill port cover. Torque screw to **7±1 in-lbs**. Remove CRA from diffusion chamber and secure CRA clamp locking assembly latches.

6. **SHUTDOWN PROCEDURE**

(a) Close valve on argon source bottle or regulator. Turn INLET CONTROL valve to SHUTOFF. Turn OUTLET CONTROL valve to CHARGE position until gas is heard escaping OUTLET port. Turn OUTLET CONTROL valve to SHUTOFF.

(b) Turn OUTLET CONTROL valve to CHARGE. Turn INLET CONTROL valve to OPEN.

(c) Turn UNLOADER VENT valve to VENT. When INLET PRESSURE and BOOSTED PRESSURE gauges both indicate 1500–2000 psig, turn UNLOADER VENT valve to SHUTOFF.

(d) Turn OUTLET CONTROL valve to SHUTOFF. Turn INLET CONTROL valve to SHUTOFF.

(e) Turn OUTLET DRAIN valve to DRAIN. When OUTLET PRESSURE gauge indicates 1500–2000 psig, turn OUTLET DRAIN valve to SHUTOFF. Select Filter Dian Valve to Drain.

(f) Remove power cord from facility power outlet.