

TABLE OF CONTENTS

Chapter 1	Autosamdri®-815B, Series A Overview	
	Large Capacity Fully Automatic Autosamdri®-815B, Series A	2
	Autosamdri®-815B, Series A Setup Overview	3
Chapter 2	Installing Autosamdri®-815B, Series A	
	Preparation of Installation Site	4
	Installation of the Autosamdri®-815B, Series A	4
Chapter 3	Operating Autosamdri®-815B, Series A	
	Operating Autosamdri®-815B, Series A	11
Chapter 4	Illustrations	
	Purge Timer Overview	16
	Metering Valve w/ Vernier Handle Setting Example	16
	HF Compatible Insert View	17
Chapter 5	Maintenance and Support	
	Regular Maintenance Schedule	18
	Chamber Care	19
	LCO ₂ Filter Assembly	20
	LCO ₂ T-filter Element Installation	22
	FAQ	23
	Spare Parts List	27
	Warranty	28
	Repackaging for Shipment	28
Appendix		
	A. Backing Ring and Chamber O-Ring Installation	29
	B. Leak Correction Protocol	32
	C. Purge Line Filter Maintenance	38
User's Notes		41
Illustration Index		42
Check Out Data Sheet		
Warranty		

Autosamdri®-815B, Series A Overview

Large Capacity Fully Automatic CPD Autosamdri®-815B, Series A

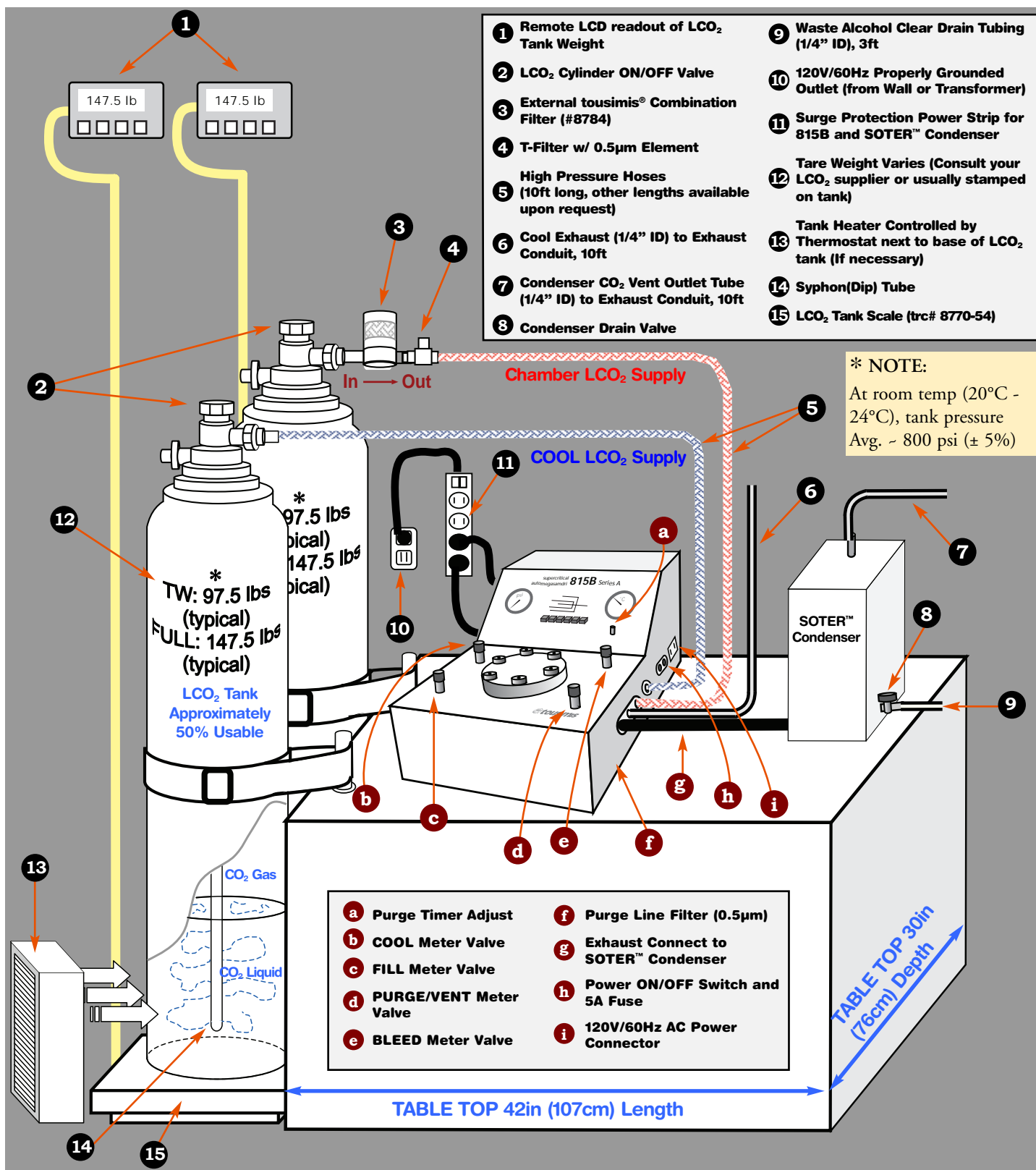


Autosamdri®- 815B, Series A System includes Autosamdri®-815B, Series A CPD SOTER™ Condenser, Chamber Inserts, and the LCO₂ Filter.



tousimis® Catalog #8780B (Large Capacity Fully Automatic CPD Autosamdri®- 815B, Series A)

Autosamdri®-815B, Series A Setup Overview



Installing Autosamdri®-815B, Series A



NOTE:

Always order LCO₂ tanks with Siphon (Dip) tubes.

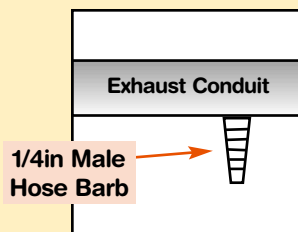
BOC gas suppliers refer to 99.8% purity grade as “2.8” grade.

Air Products gas suppliers refer to 99.8% purity grade as “CP” grade.



NOTE:

It is best to route Exhaust Tubing to facility Exhaust Conduit and attach via 1/4in male hose barb to conduit or exhaust hood.



PREPARATION OF INSTALLATION SITE

Insist on clean surfaces. Minimum table top space requirement of approximately 42"(107cm) width x 30"(76cm) depth should be allotted for the Autosamdri®-815B, Series A and SOTER™ Condenser. An additional 24"(61cm) x 36"(92cm) of floor space for the LCO₂ tanks and ceramic heater (if necessary) needs to be designated at install site (See p.3). Use bone-dry LCO₂ with a Siphon (Dip) Tube tank only. Never use pressurized LCO₂ with Helium or any other high pressure head substitute gas tanks.

Use only LCO₂ with minimum 99.8% purity.

Secure LCO₂ tank according to your facility's safety protocol.

Tank pressure typically reads 800psi (±5%) at room temperature. The amount of LCO₂ in tank is best monitored with a LCO₂ tank scale (See p.3).

Typical nominal LCO₂ tank weights for Net / 50lb LCO₂ tanks:

- Full tank: 140 to 170 lbs / Tare of tank: 90 to 120 lbs.
- Most of the time, you may use 50% of a 50lb. net weight CO₂ tank.
- It is good practice to have spare LCO₂ tanks stored in reserve in case a LCO₂ tank runs out during mid process.

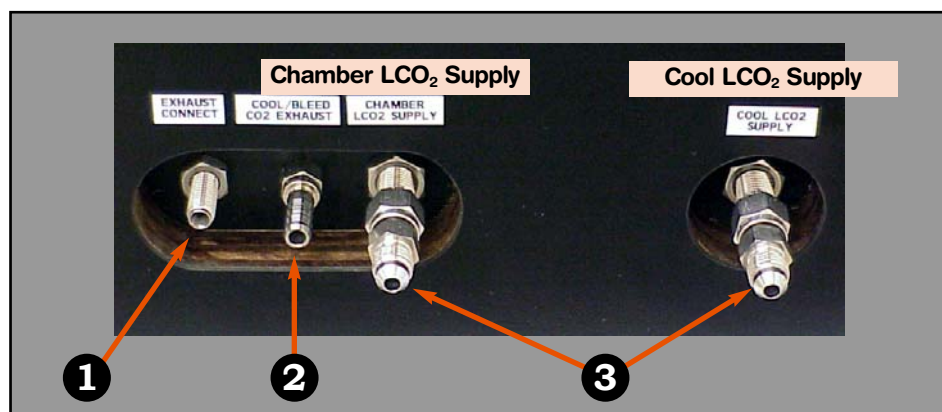
- A properly grounded 120V / 60Hz outlet should be located within 4ft of install site.
- Two 1/4" male hose barbs should be installed into the exhaust conduit within 10ft of installation site to connect CO₂ gas exhaust lines. One exhaust line is from the COOL / BLEED Exhaust, while the other is from the SOTER™ Condenser Vent Exhaust.

INSTALLATION OF THE AUTOSAMDRI® -815B, Series A

- Attach the HIGH PRESSURE HOSE with the pre-installed #8784 filter onto the CHAMBER SUPPLY LCO₂ Inlet Connect.
- Next, attach the HIGH PRESSURE HOSE without the LCO₂ filter onto the COOL SUPPLY LCO₂ connect. No teflon tape is required.
- Gently tighten the High Pressure Female Connector using the two open-end wrenches supplied (one on the hose and the other on the Inlet). Stop at the feel of first resistance; re-tighten if necessary, should it leak.
(See “Connecting High Pressure Hose to Autosamdri®-815B, Series A” on p.5)

Autosamdri®-815B, Series A Inlet / Outlet Connect

- 1 Exhaust Connect Outlet to SOTER™ Condenser
- 2 COOL / BLEED CO₂ Exhaust Outlet
- 3 LCO₂ Supply Connects



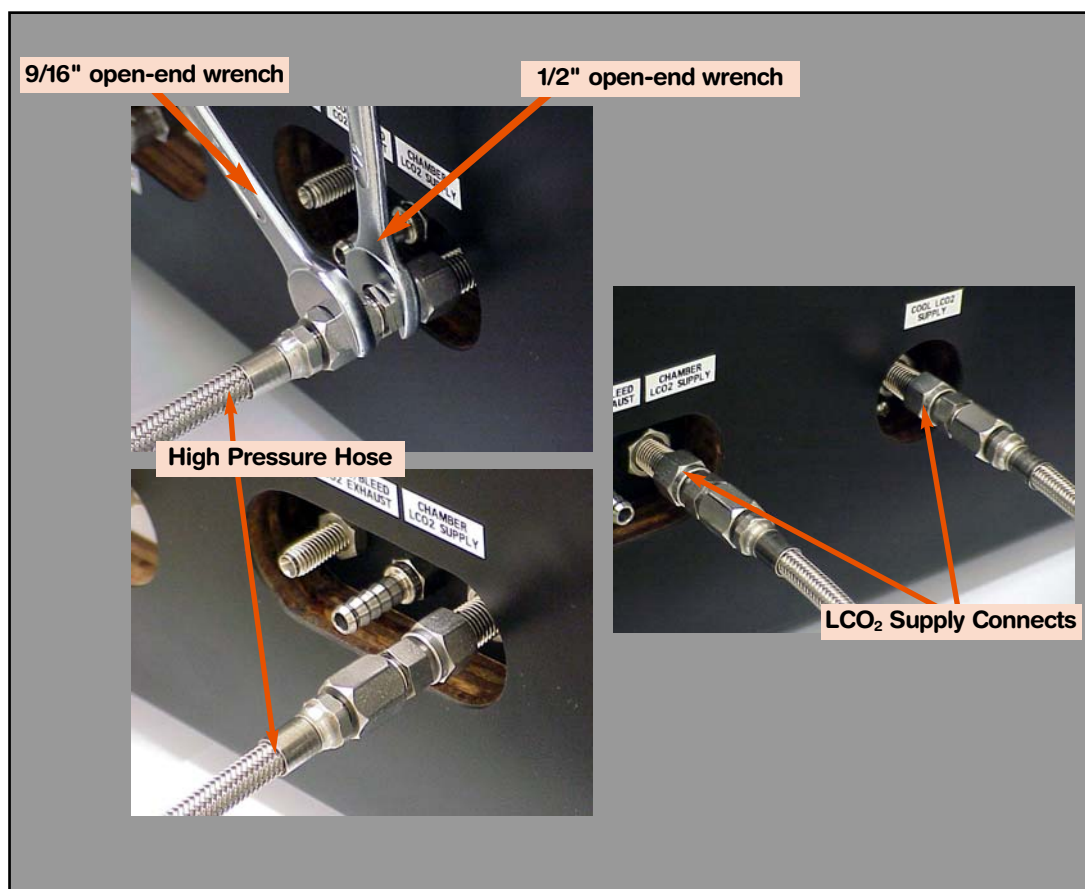
Connecting High Pressure Hose to Autosamdri®-815B



NOTE:

Attach LCO₂ high-pressure hose end fittings to the 815B LCO₂ connects. You will need the supplied 9/16" and a 1/2" open-end wrenches. First, slide 1/2" wrench over 1/2" fitting as shown in the photo. The 1/2" wrench will be used to hold the connect assembly steady as you gently tighten the high pressure hose end fitting snugly onto each of the LCO₂ Supply Connects with a 9/16" wrench.

DO NOT
OVER-TIGHTEN



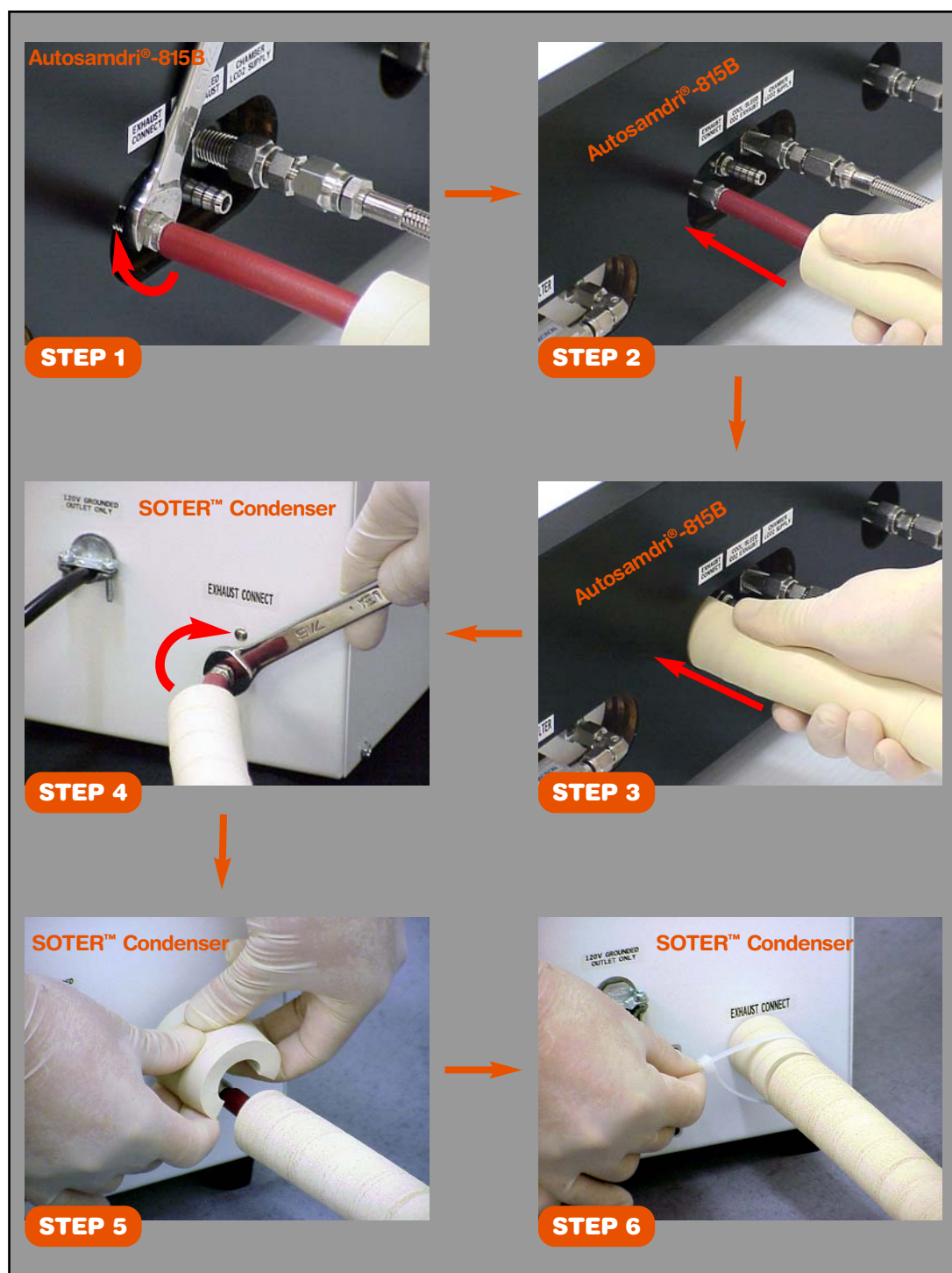
Insert the Filter Element (#8784A) into the tousimis® Combination Filter (#8784) before you open the tank valve. The 0.5µm filter has been pre-installed.
(See schematic furnished, p.20-21)

Connecting SOTER™ Condenser to Autosamdri®-815B

Attach the insulated exhaust connect tubing to the “EXHAUST CONNECT” of the 815B. Connect the other end to the Condenser “EXHAUST CONNECT”.

Use 7/16” open-end wrench provided to make these connections (Steps 1-6)

DO NOT OVER-TIGHTEN.

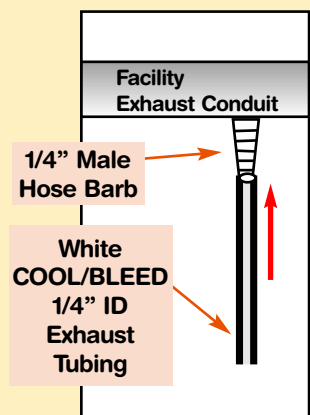


Connecting COOL/BLEED Exhaust Hose to Autosamdri®-815B



NOTE:

It is best to route CO₂ gas Exhaust Tubing to either facility Exhaust Conduit and attach via 1/4" male hose barb to conduit or vent hood.

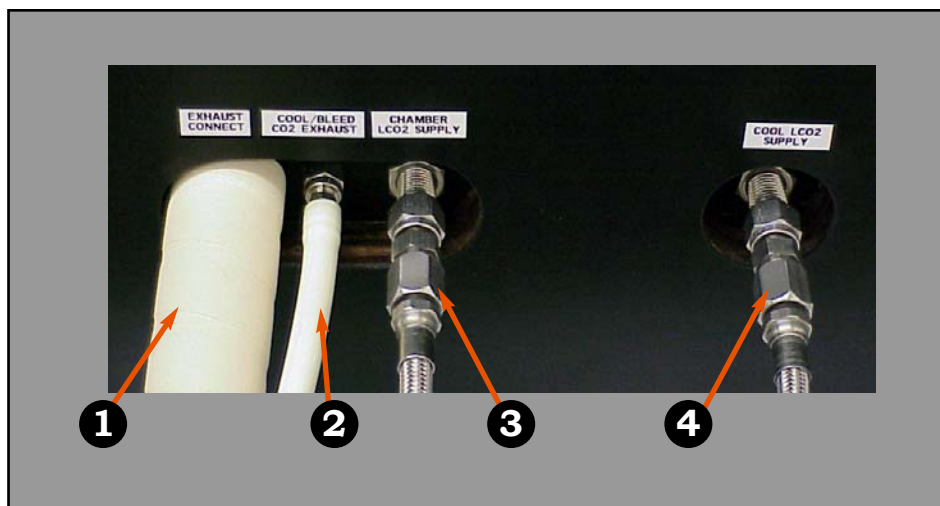


Attach the 10ft White exhaust tubing provided to the COOL/BLEED Exhaust outlet on the Autosamdri®-815B, Series A. Tubing should be free of kinks which could block passage of rapidly exiting noisy gas or solid flakes of CO₂.



Inlet / Outlet Set-Up

- 1 Exhaust Connect Outlet to SOTER™ Condenser
- 2 COOL / BLEED CO₂ Exhaust Outlet
- 3 CHAMBER LCO₂ Supply Connect
- 4 COOL LCO₂ Supply Connect



SOTER™ Condenser Exhaust Connect Overview

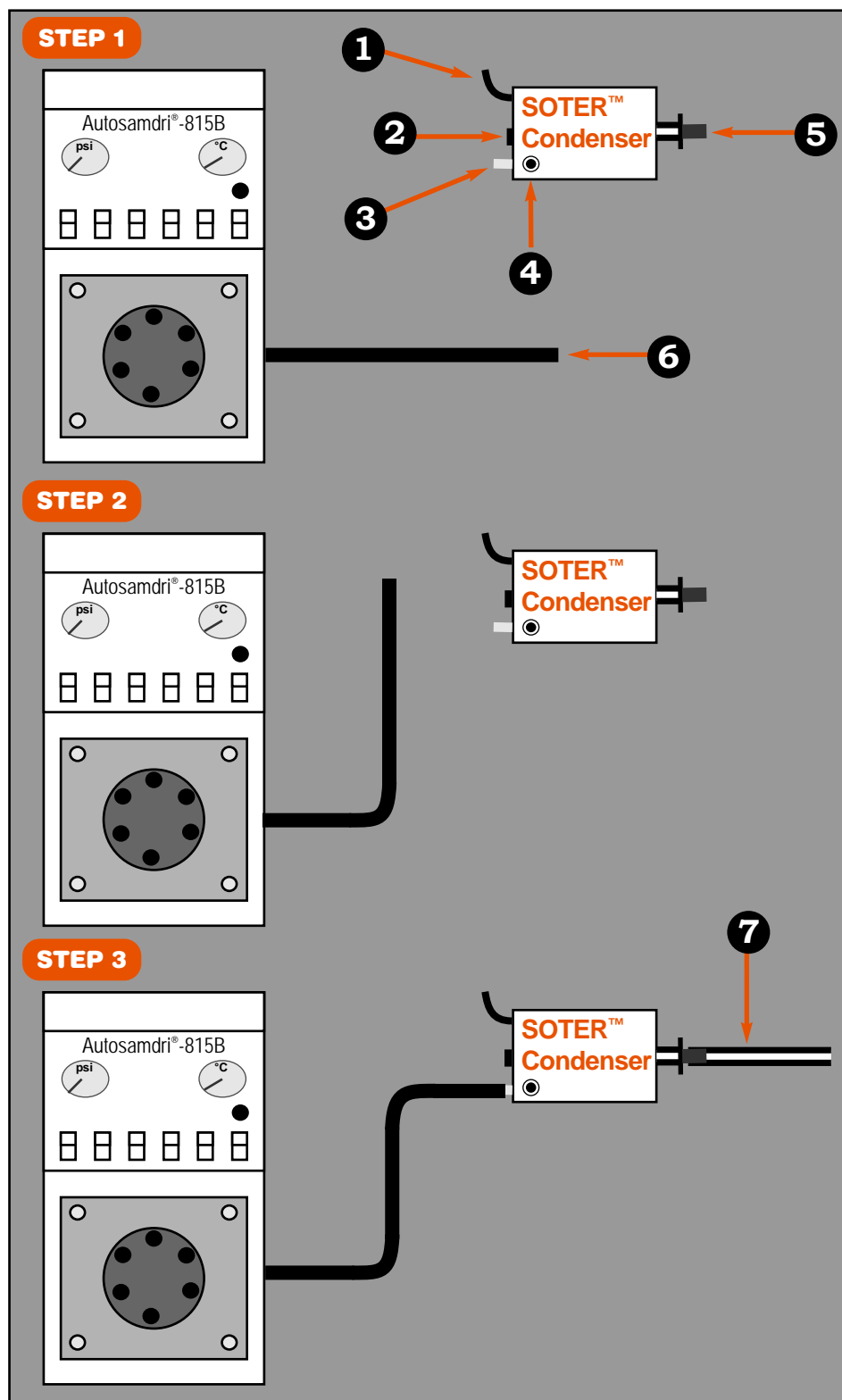
- ❶ 120V Power Cord
- ❷ Power ON / OFF Switch for SOTER™ Condenser
- ❸ Exhaust Connect to Autosamdri®-815B
- ❹ Vent Outlet (Attach 10' White Exhaust Tubing and route to either Exhaust Conduit or Vent Hood)
- ❺ Waste Alcohol Drain Valve
- ❻ Exhaust Connect to SOTER™ Condenser
- ❼ Attach 3ft length of clear Condenser drain tubing and lead to waste alcohol collection container or solvent drain.



NOTE:

- Do not make any hard 90° Bends in Exhaust Connect.
- A gradual "S" curve is desirable.
- Do not over-tighten fittings on either end of Exhaust Connect.
- Check for leaks during the first run after connecting.
- Tighten as necessary.

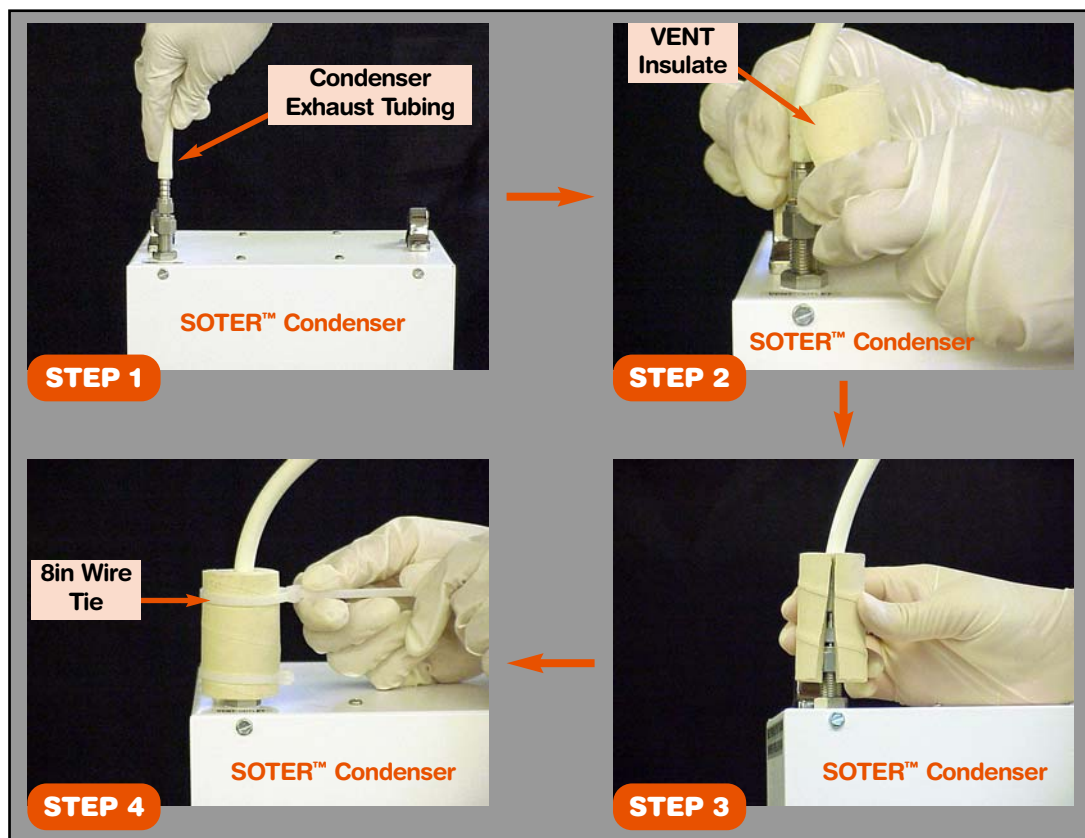
DO NOT OVER-TIGHTEN



U.S. Patent #6,493,964 covers SOTER™ CONDENSER

Connecting SOTER™ Condenser Exhaust Tubing

- Connect the white 10ft length of 'Condenser Exhaust Tubing' to the Condenser 'Vent Outlet' (Step 1) and cover the 'Vent Outlet' with the provided 'Vent Outlet Insulate' (Step 2). Secure VENT Insulate with 2 x 8in wire ties and cut excess (Step 3-4)



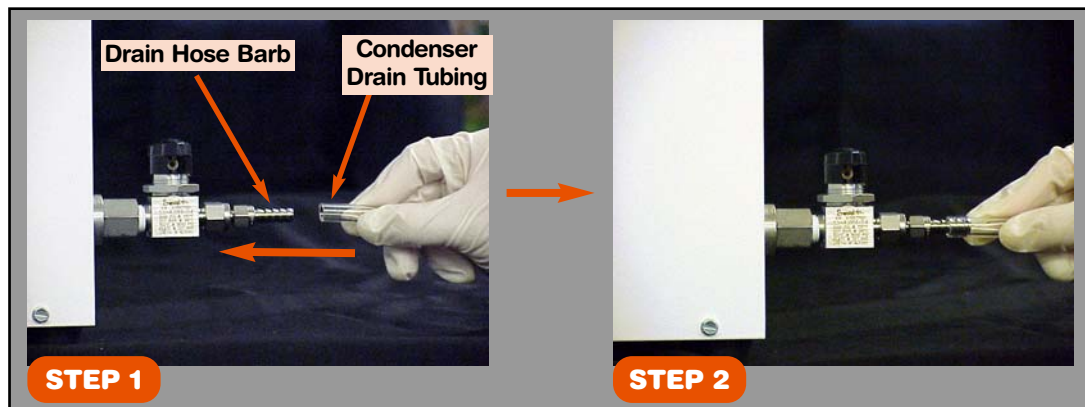
Connecting SOTER™ Condenser Drain Tubing



NOTE:

The drain tubing may be routed to either a waste alcohol collection container or solvent drain, as per your facility guidelines. The drain valve may be left open if drain tubing routed to proper collection technique mentioned above.

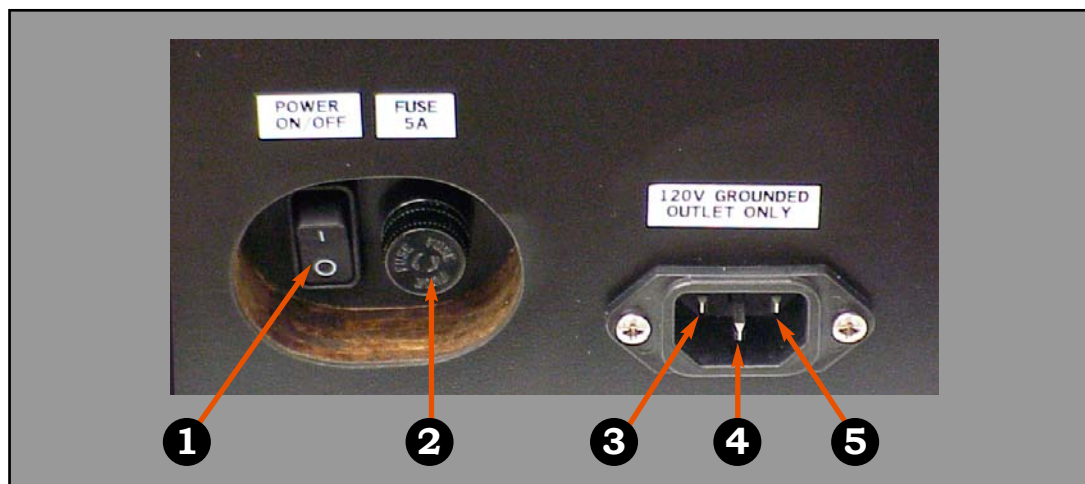
The 3' length of clear Tygon 'Condenser Drain Tubing' should be placed onto the condenser's drain hose barb. The clear hose will allow you to visually see the alcohol draining into your waste alcohol collection container or solvent drain.



Autosamdri®-815B, Series A Power Panel

Locate the Power ON (1) / OFF (0) socket switch on the right hand side panel of the 815B (near 5A fuse) make certain it is in the OFF (0) position (down).

- ① ON / OFF POWER SWITCH
- ② 5 AMP SLO-BLOW FUSE
- ③ AC (WHITE) NEUTRAL
- ④ GROUND 120AC/60HZ (test your ground)
- ⑤ AC (BLACK) HOT



Plugging Power of Autosamdri®-815B, Series A



NOTE:

In winter months it may be beneficial to use a small heater (ceramic type only) near the base of the LCO₂ tank to ensure proper flow of liquid CO₂ (See illustration on p.3). LCO₂ tank temperature should be between 65°-75°F. Low tank temperature (due to external tank storage during winter months) will result in lower tank pressure.

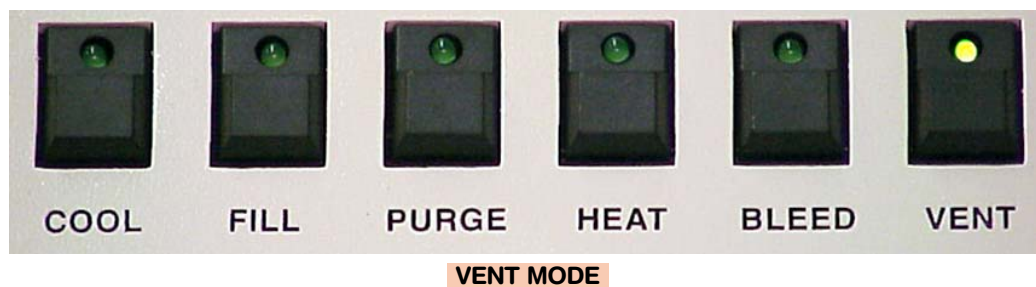


The power strip switch is used to surge protect both the SOTER™ Condenser and the Autosamdri®-815B.

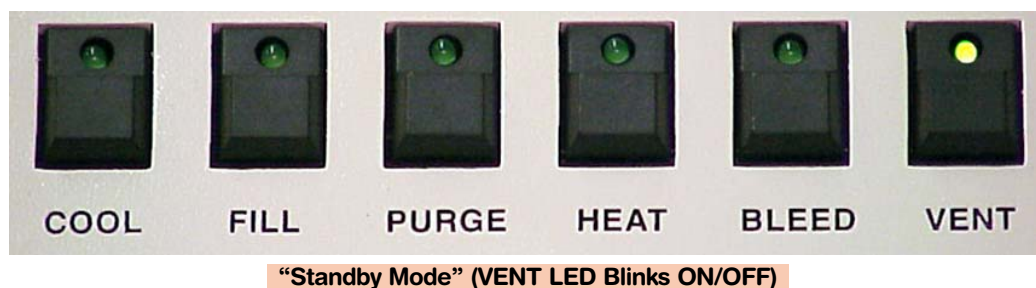
- Plug the power strip into a 120V / 50 - 60Hz properly grounded outlet.
- Plug both the 815B and SOTER™ Condenser into Surge Protector power strip.
- The power strip should be plugged into the 110-120V outlet of the transformer in countries of alternative voltage.

Operating Autosamdri®-815B, Series A

1. Turn power switch “ON”. “ON/OFF” power switch is located on right side panel (See p.10). Green LED on VENT button will illuminate. This indicates the power is ON and the unit is in standing by in the VENT mode.



2. Let 815B stand for 3-5 minutes. This initial wait period will allow all internally heated plumbing components to “warm-up”.
3. Open process chamber by carefully lifting Chamber Lid and placing aside onto soft surface (Lint free wipes provide a convenient surface to place chamber lid).
4. Now, press the VENT button once. The VENT LED will begin to blink. This indicates that the VENT solenoid is closed and in the “STAND-BY” mode. You may now introduce ultra-pure alcohol into the chamber.



5. At this point, fill the process chamber with enough high purity alcohol (I.P.A., Methanol, or Ethanol) to cover your sample(s).

NEVER EXPOSE CHAMBER TO ANY ACIDS!

6. Carefully and quickly transfer your sample(s) from your sample container into the 815B process chamber. For best results, minimize any exposure time to air.
7. Carefully align and place the chamber lid on top of the process chamber.

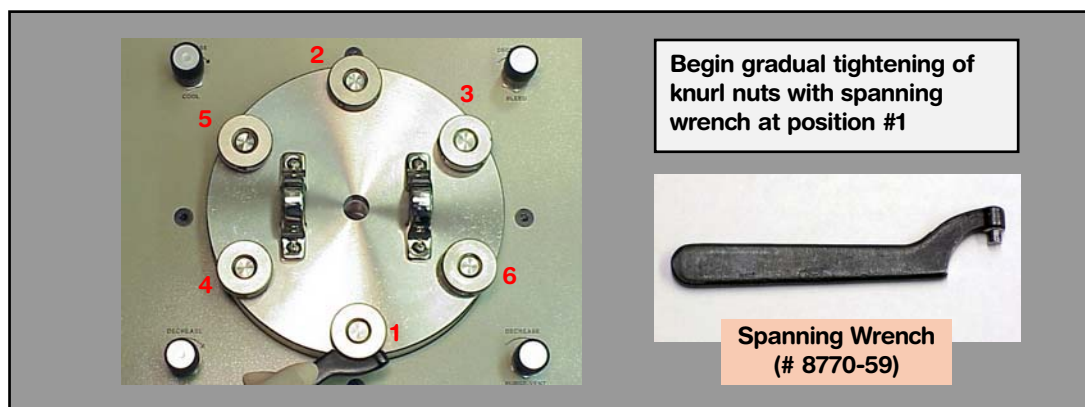
Star-Pattern Tightening Sequence



NOTE:

A “Star-Pattern” is the sequence necessary to properly secure chamber lid prior to initiating a process run.

Use your hand to evenly tighten the 6-knurl nuts around the circumference of the chamber lid. Then, use the spanning wrench provided, uniformly tighten each knurl nut in a “Star Pattern”. Tighten the knurl nuts in the numbered sequence as shown in the photo. Repeat this rotation “Star Pattern” sequence until the knurl nuts are unable to tighten further.



8. Once the chamber lid is secured, it is time to set the PURGE timer located to the right of the push button switches (See p.16). Positions on the purge timer are calibrated at 5-minute intervals.

Setting Purge Timer

Setting the “purge timer” indicator arrow to the #1 position will give you a 5-minute purge time. The #2 position will give you a 10-minute purge time... Correspondingly, the #9 position will give you the maximum purge time capable of 45 minutes.

The “Purge Time” setting is best determined by the individual investigator.

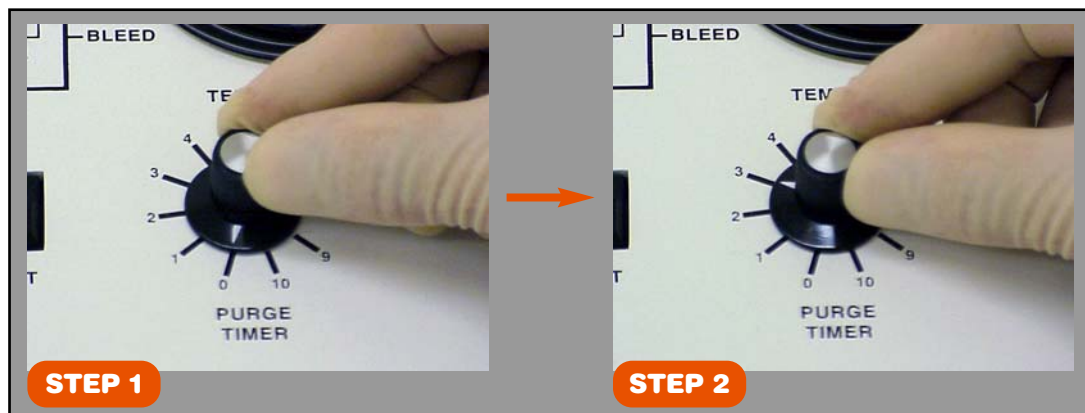
General Purge Time guidelines for various chamber alcohol levels are the following:

- $\frac{1}{4}$ chamber = 10 minute purge time.
- $\frac{1}{2}$ chamber = 15 minute purge time
- $\frac{3}{4}$ chamber = 20 minute purge time

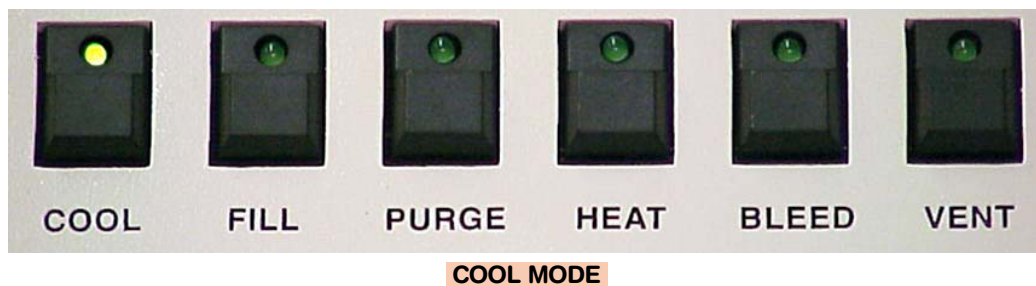


NOTE:

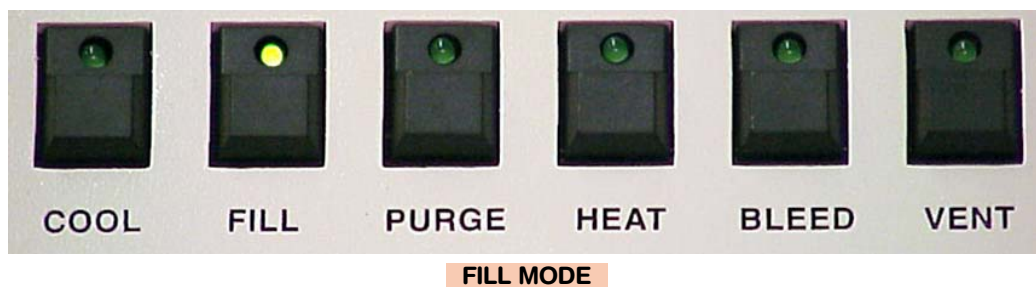
Actual purge time can vary depending on your sample type in combination with the FILL and PURGE metering value adjust positions.



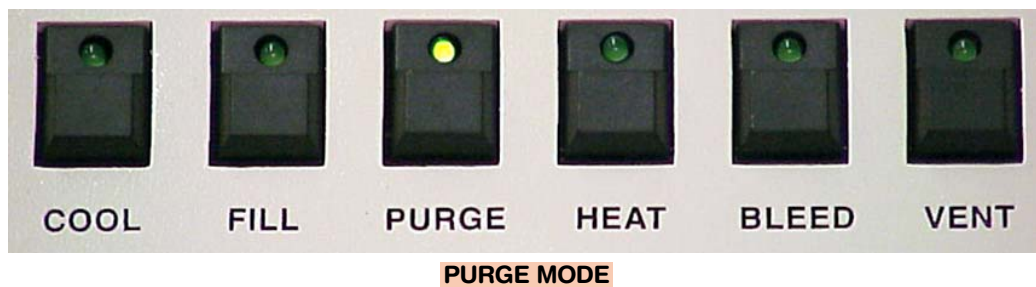
9. After initial warm up, press the COOL button. The COOL LED light will go on, and the VENT light will turn off. The chamber will begin to COOL. As the chamber temperature slowly begins to drop, you may hear LCO₂ circulating through the unit. The 815B will automatically continue cooling until the process chamber reaches operational temperature. At this point, the cooling will automatically stop.



10. Press the FILL button and the 815B will begin to fill the process chamber with LCO₂. From this point forward, the Autosamdri®-815B, Series A will automatically advance through all process modes sequentially until completion. During the FILL mode, the LCO₂ will enter and fill the chamber for 8 minutes. You may hear the COOL cycle ON/OFF during the FILL mode as the chamber temperature is automatically maintained below 10°C.

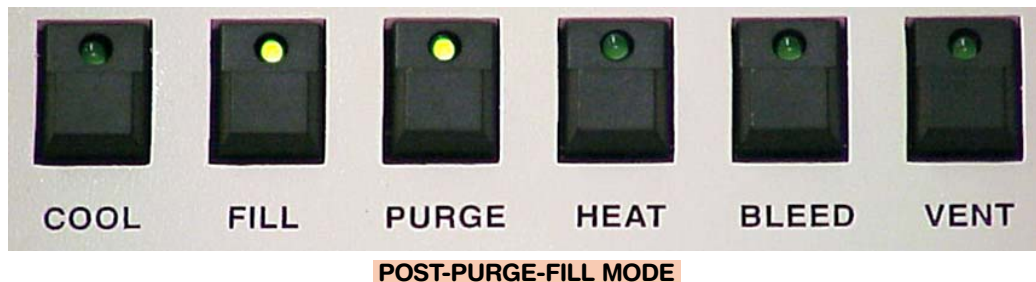


11. After the 8 minute FILL mode expires, the 815B will automatically advance into the PURGE mode. This will be indicated by the illumination of the PURGE LED.

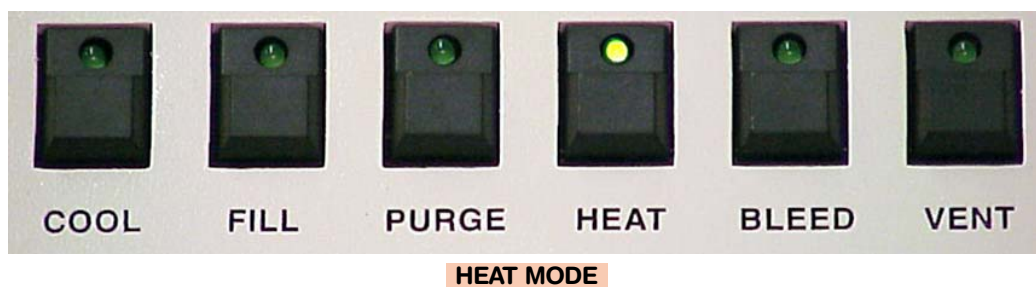


12. At this point of the cycle, the 815B will remain in the PURGE mode for the duration of the Purge time pre-set by the operator via the PURGE TIMER (See p.16). The waste alcohol exiting the 815B Chamber Exhaust connect hose will be routed directly into the SOTER™ Condenser. The exiting solid CO₂ collected into the SOTER™ Condenser will sublime into CO₂ gas and exit via the SOTER™ Condenser VENT outlet.

13. Upon Completion of the PURGE mode, the 815B automatically advances into the POST-PURGE-FILL mode in which the process chamber fills with LCO₂ for an additional 4 minutes. This mode is visualized by both the FILL and PURGE LED's illumination.

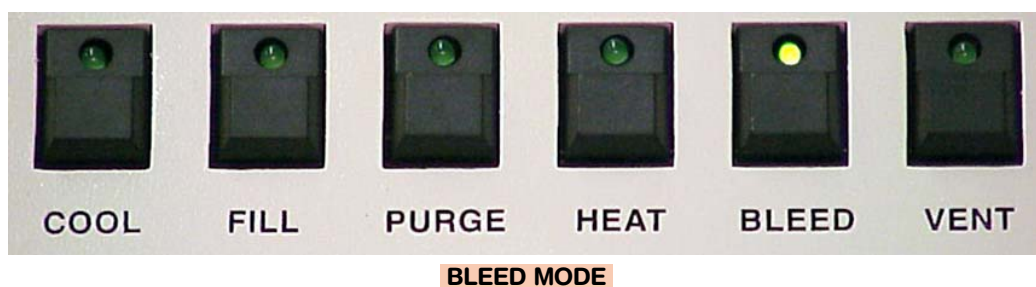


14. Upon completion of the POST-PURGE-FILL mode, the PURGE and FILL LEDs will turn off and the HEAT LED will illuminate. The HEAT mode is the stage in which the samples are carried through the “*Critical Point*”. Both the pressure and temperature will steadily rise. (See Check-Out Data Sheet in the appendix of your 815B User Manual)



15. When the chamber pressure reaches and goes beyond 1072 psi, it will stabilize in the range of 1350 psi ($\pm 5\%$). As the temperature achieves 31°C, the unit has achieved the “critical point” and this is where the ‘*tousimis equilibrium**’ cycle starts. The HEAT LED will begin to blink for the next four minutes indicating your 815B is in ‘*tousimis equilibrium*’.

16. At the end of the ‘*tousimis equilibrium*’ period, the 815B will automatically advance into the BLEED mode. The HEAT LED will stop blinking and the BLEED LED will illuminate.



17. At this point, you can measure the BLEED rate (if desired) via the 60 SCFH* Flow Meter supplied, by attaching the Flow Meter to the outlet of the COOL/BLEED CO₂ Exhaust. The BLEED rate has been factory pre-set to decompress the chamber at a rate of approximately 100-150psi/min.

The flow rate should read 40-50 SCFH at the onset of the BLEED cycle. This setting should yield an average of approximately 100-150psi/min reduction in pressure. This pressure reduction flow rate is the desired decompression rate down to 400psi.

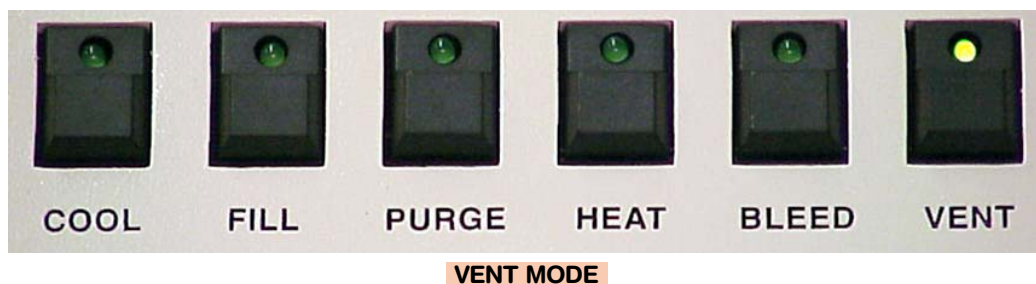


‘*tousimis equilibrium*’ is the point during the critical point passage in which both the pressure and temperature are maintained above the critical point within the chamber for a period of 4 minutes prior to advancing into the BLEED mode.



* SCFH = Square Cubic Feet per Hour

18. At approximately 400 psi, the 815B will automatically advance from BLEED mode to the VENT mode. The BLEED LED will turn off, while the VENT LED will illuminate.

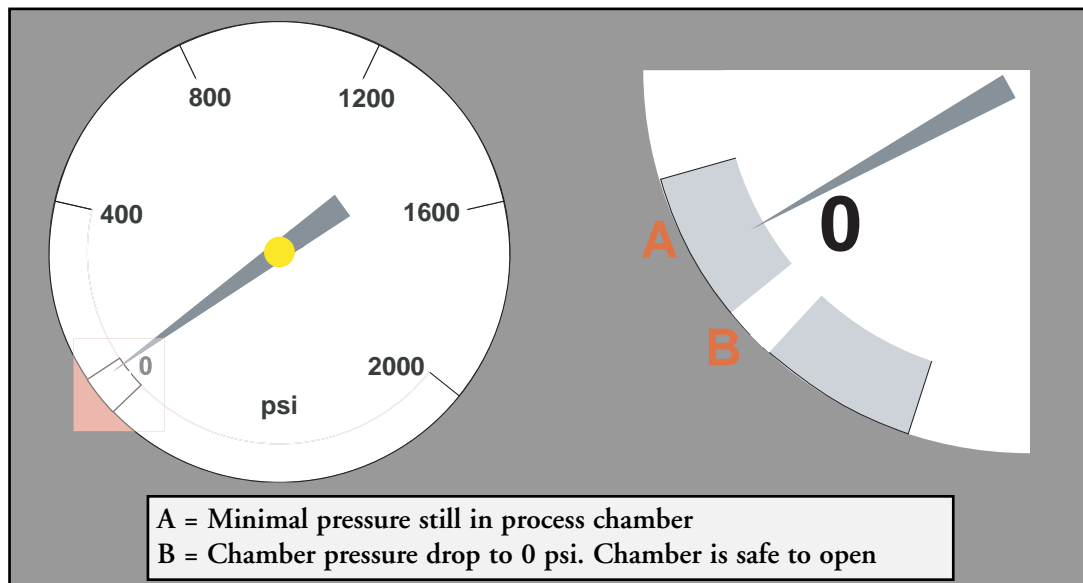


19. It is not necessary to readjust the PURGE-VENT metering valve flow rate. The chamber should then come to atmospheric pressure in approximately 5 minutes in this VENT mode.

20. At this point, the chamber lid may be removed by alternatively and evenly loosening all of the knurl nuts using the spanning wrench in a "Reverse Star Pattern"
(Pressure Gauge should be in the 0 psi range, Never attempt to 'force' opening).

21. The sample(s) can then be removed from the chamber for further processing. Seal the chamber with the lid to help keep it clean and moisture free.

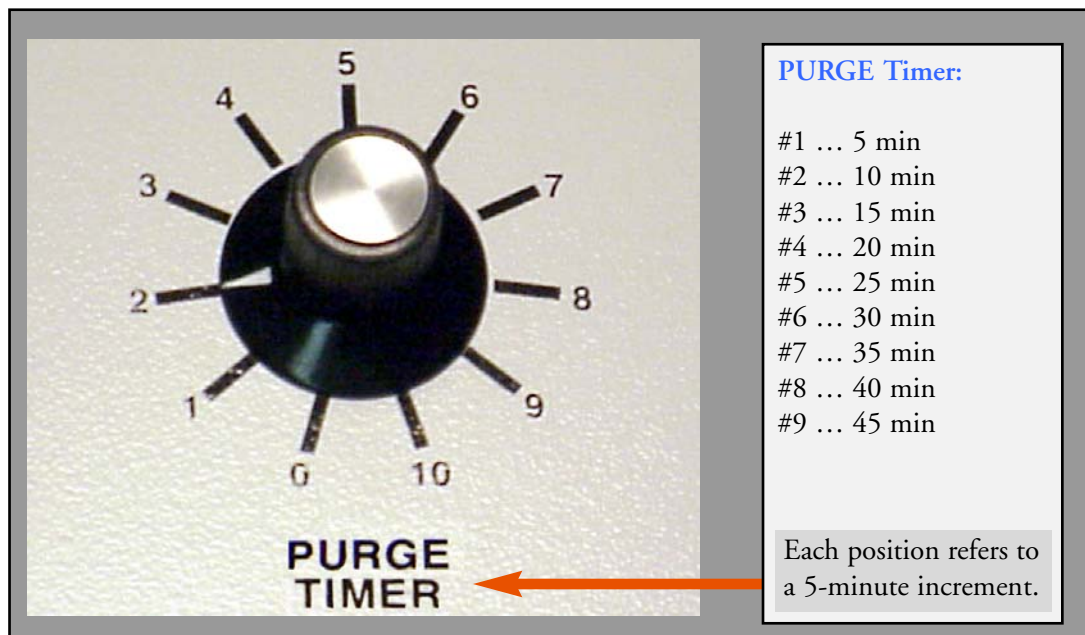
Pressure Gauge (0 psi)



22. Turn the 815B power off using the ON/OFF SWITCH located on the right-hand side of the 815B CPD (See p.10) when shutting down system. You will notice that it will take a few seconds for the VENT LED to turn off.

23. Turn the SOTER™ Condenser power switch into the OFF position when finished processing your samples.

Purge Timer Overview

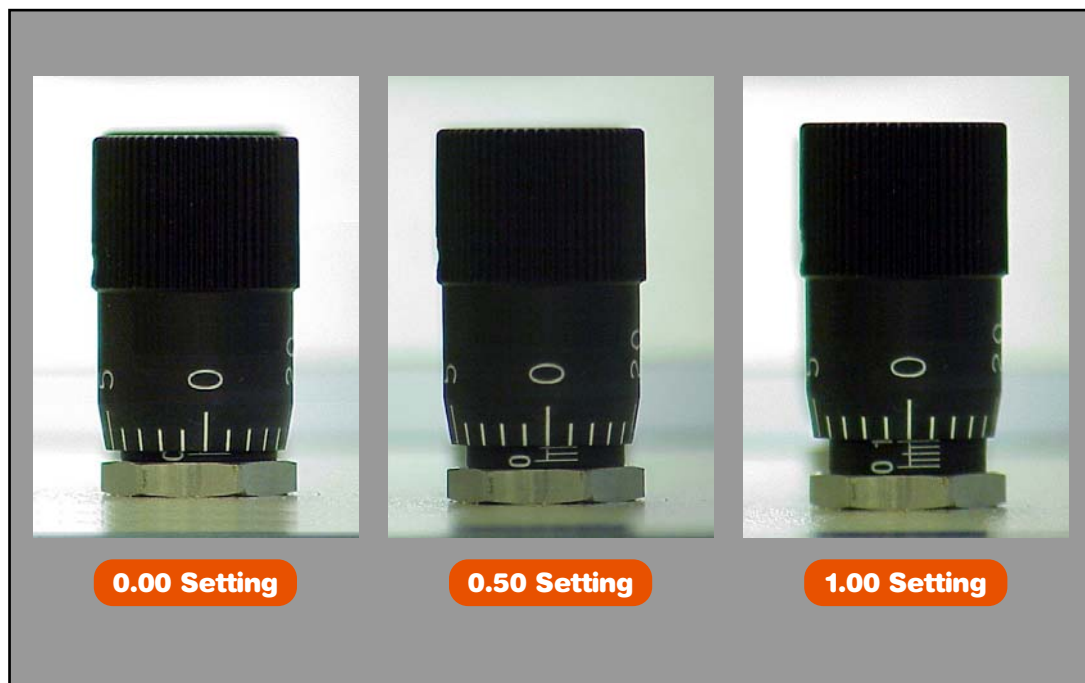


Metering Valve w/ Vernier Handle Setting Example

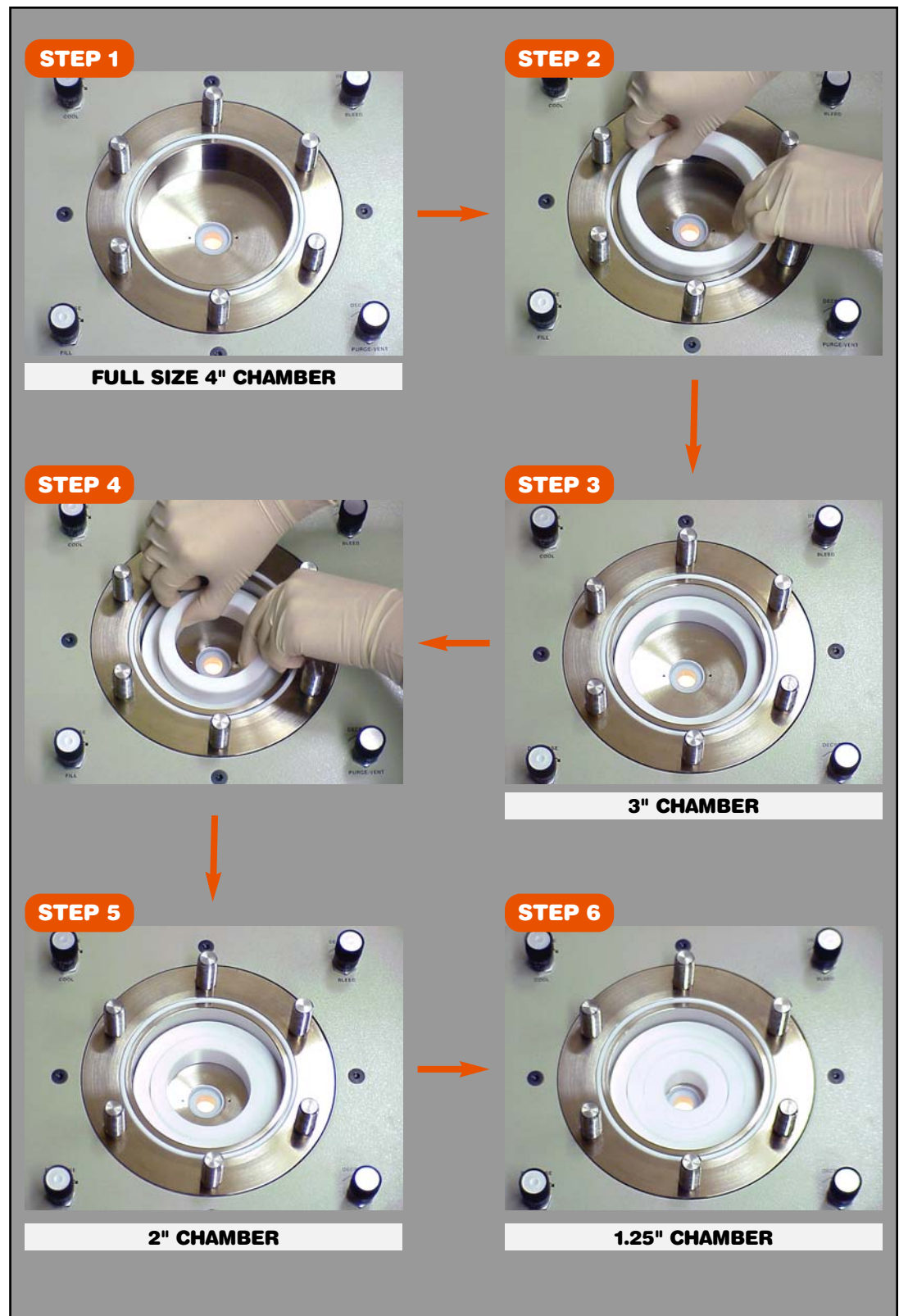


NOTE:

The numerical markings are arbitrary numerals for the sole purpose of meter valve adjustment position reference.



Chamber Inserts



Maintenance and Support

Regular Maintenance Schedule

Maintenance Activity	Recommended Frequency	Manual Reference	trc® Catalog Number
Keep Chamber Clean and Dry	Always	p. 19	N/A
Replace LCO ₂ Tank	After 50% net tank consumption	p. 23 (FAQ)	Contact local supplier
Replace LCO ₂ Oil/Water Filter on High Pressure Hose	500lb LCO ₂ Use	p. 20-21	# 8784A
Replace T-Filter Element on High Pressure Hose	1 Year*	p. 22	# 8770-83B
Chamber O-Ring	3 Months*	p. 29-31	# 8770-51T/815B
External Purge Line 0.5µm Filter	6 Months*	p. 38-40	# 8770-83B
* Depends on usage.			

Chamber Care



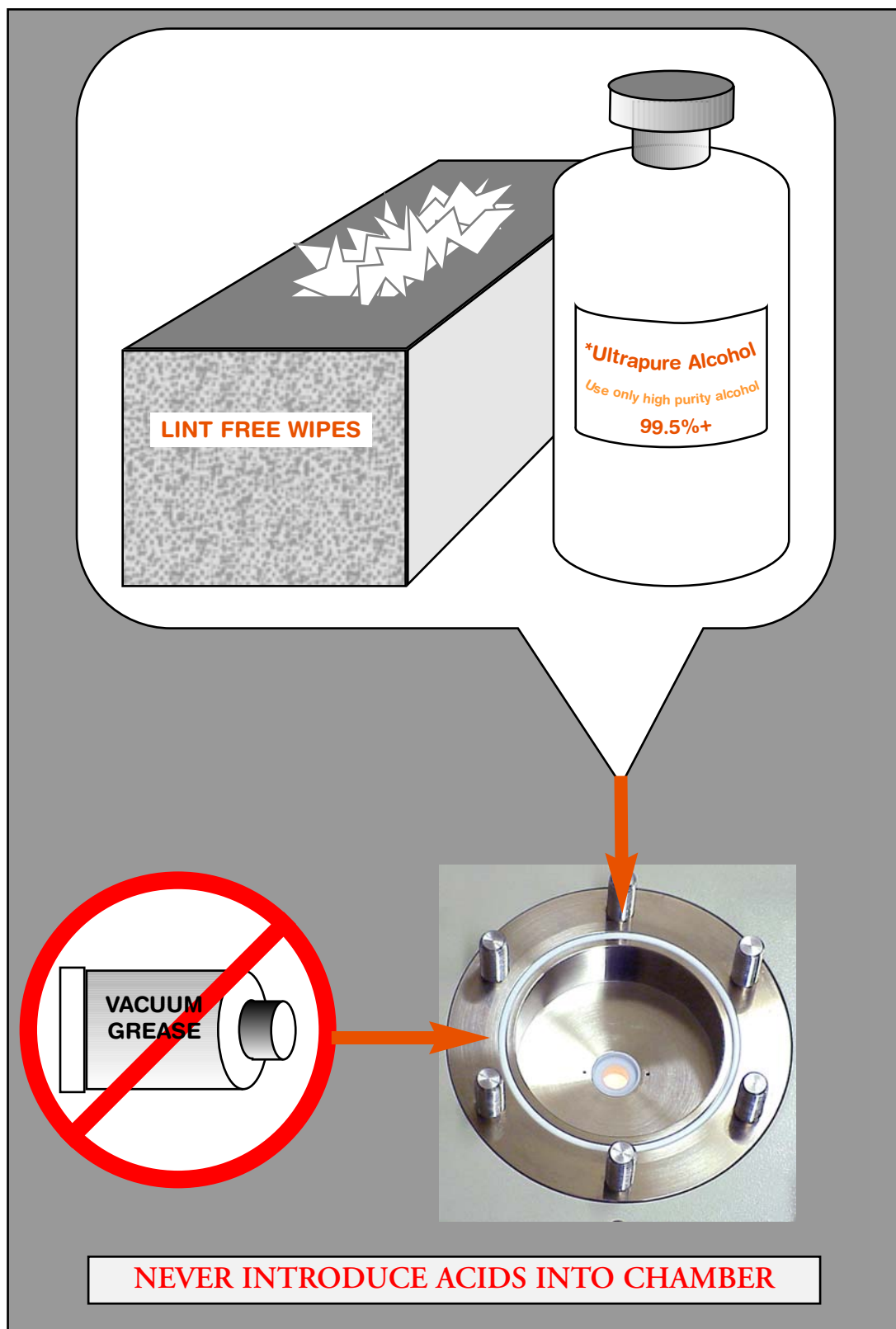
NOTE:

- Use Ultrapure Alcohols only! (i.e. I.P.A., Methanol, Ethanol).
- Use 99.5% minimum purity Alcohols for best results.



NOTE:

KEEP CHAMBER
O-RING GLAND AND
CHAMBER FACE
CLEAN AND DRY AT
ALL TIMES.



LCO₂ Filter Assembly

THE tousimis® HIGH-PRESSURE #8784 COMBINATION FILTER ASSEMBLY

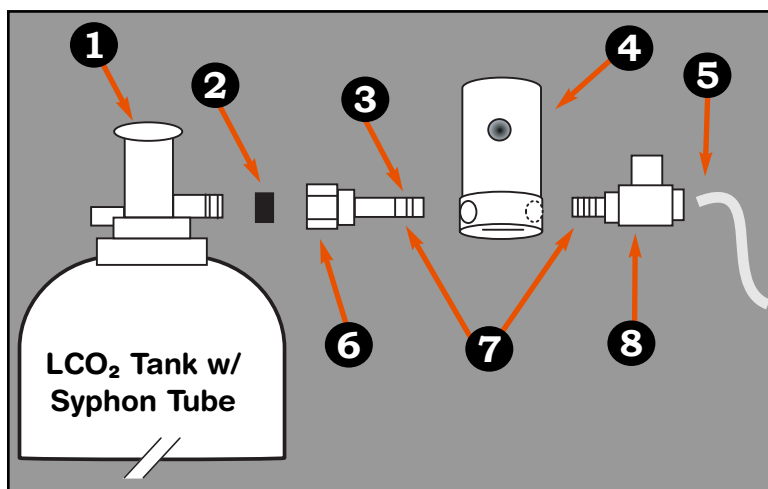
trc #8784 (Filter Housing)

trc #8784A (Filter Element)

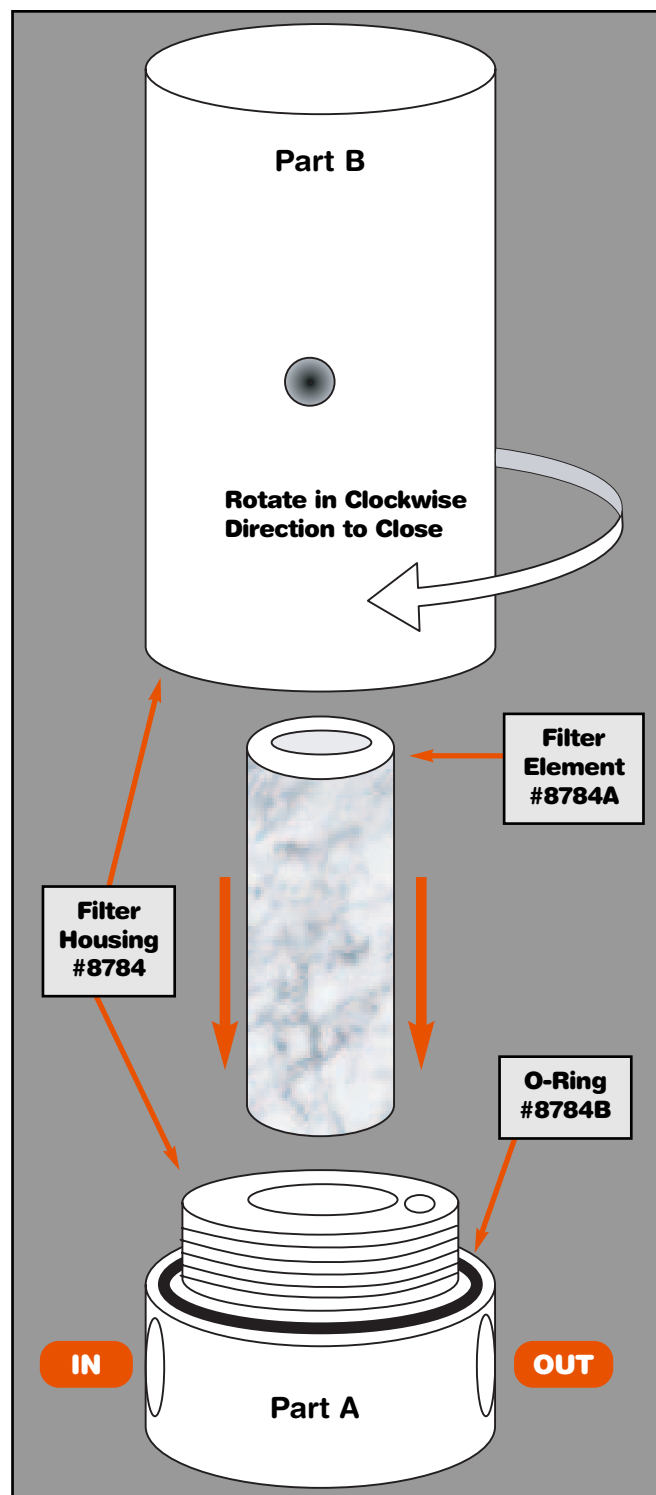
Installation Instructions

1. Uncouple CGA-320 S.S. nut from LCO₂ tank. Close main tank valve. Crack S.S. nut and bleed line pressure. Make certain there is no pressure within the high pressure hose.
2. Install filter element as shown in the diagram. (#8784A) Push element steadily into upper housing orifice until slight resistance is felt. Screw housing (Part B) onto upper housing (Part A). Be sure that teflon® O-Ring is in place.
3. The 0.5 µm T-Filter element is pre-installed into T-Filter.

* Change filter element (#8784A) with every 500 lbs of LCO₂ to insure proper filtration.



- | | |
|---|---|
| ① Main LCO ₂ Tank Valve | ⑤ High Pressure Hose to Samdri® |
| ② Gasket (Teflon or Nylon) | ⑥ CGA - 320 S.S. Coupler Nut |
| ③ CGA - 320 S.S. Nipple | ⑦ Teflon tape |
| ④ #8784 Filter Housing w/ #8784A Oil/Water Filter Element | ⑧ T-Filter with #8770-83B 0.5 µm Particulate Filter Element |



CAUTION: USE tousimis® LCO₂ FILTER ELEMENTS (trc# 8784A) ONLY.

Operating pressure not to exceed 1000 psi

LCO₂ Filter Assembly

STEP 1



After all of the pressure is safely bled from the high pressure line, unscrew #8784 housing by hand.

STEP 2



Remove housing.

STEP 4



Place new #8784A element into lower housing. Let gravity hold element in place.

STEP 3



Remove old element and position new element into center of lower housing.

STEP 5



Carefully lower filter housing over replacement element (#8784).

STEP 6



Hand tighten the housing body together firmly. O-Ring seats properly. Open main tank valve and check for leaks.

LCO₂ T-Filter Element Installation (#8770-83B)

STEP 1



After all of the pressure is safely bled from high pressure line, unscrew T-Filter cap using wrench.

STEP 2



Carefully remove T-filter element.

STEP 4



Top view of correctly installed T-Filter.

STEP 3



Install a new T-filter element (#8770-83B) into center of T-filter housing.

STEP 5



Hand tighten T-filter cap.

STEP 6



Use adjustable wrench, tighten the T-filter cap firmly. Open LCO₂ tank valve and check for leaks.



NOTE:
Do not over-tighten
T-Filter Cap.

FAQ

Are the Metering Valves pre-set from the factory?

YES. All Metering Valves (See p.16) are factory set during the final check-out. However, should you wish to change the rate of flow, feel free to readjust the valves to suit your particular parameters. Keep in mind that the incoming LCO₂ into the chamber controlled by the FILL adjust; should always be greater than the outlet of LCO₂ (controlled by the PURGE / VENT adjust) during the PURGE mode.

The BLEED rate needs to average no more than 100-150 psi/minute in chamber pressure reduction. A Flow Meter has been provided for occasional BLEED rate adjustment.

Do I need to open / close the Metering Valves?

NO. There is no need to “Close” or “Open” the Metering Valves. These functions are carried out by the Internal Solenoid Valves. The Metering Valves are only for adjusting the Flow Rate of LCO₂ or gaseous CO₂.

Should the LCO₂ tanks be secured?

YES. It is recommended that:

The LCO₂ Tanks be placed onto LCO₂ Tank Scales (trc #8770-54) and secured as per your facility safety regulations. Monitor the net LCO₂ used. When you approach 50% LCO₂ consumption, it is recommended that you replace the LCO₂ tank with a new one. Always keep several spare tanks of LCO₂ in reserve.

Do I need an In-line regulator between the tank and the 815B?

NO. A regulator is not needed between the LCO₂ tank and the 815B. The 815B is designed to simply operate from LCO₂ direct tank pressure.

Is the chamber heated during BLEED?

YES. During the BLEED cycle as well as the VENT cycle, the 815B will maintain the chamber temperature automatically above 31°C.

How do I replace the #8784A filter elements?

To replace #8784A filter element, loosen and remove lower part B by turning counter clockwise. Remove old element and replace with new (See illustration p.20-21).

How do I secure the chamber lid?

Hand-tighten the chamber lid with the 6 Knurled Nuts supplied using the “Spanning Wrench”. Use even and steady pressure on all Knurl Nuts alternatively.
Never use a non compatible tool or excessive force.

Should I use “High-Pressure Head” tanks such as Helium or other high-pressure gases?

NO. Never use high-pressure tanks. Typical proper pressure range for LCO₂ tanks are between 750 – 900 psi. Higher pressures may damage Autosamdri®-815B, Series A and / or cause failures.

Can I use lower purity alcohol or acid in chamber?

NO. ONLY USE ULTRA-PURE ALCOHOL (ETHANOL, METHANOL, I.P.A., etc.) IN CHAMBER, NEVER ANY ACID! CONTACT TOUSIMIS PRIOR TO USING ANY OTHER INTERMEDIATE LIQUIDS.

What should I do if all the LED's begin to blink during a process run?

This indicates a CRITICAL POINT PASSAGE FAILURE due to either non-sufficient temperature or pressure. Typically this results from LCO₂ running out mid process. Turn “Chamber Power” OFF. Replace empty LCO₂ cylinder with a new tank, turn “Chamber Power” back ON and initiate new run as per normal.

Why can I only use 50% of the net amount of LCO₂ and not 100% of the net LCO₂ within a new LCO₂ tank?

LCO₂ is lost during the process for 2 reasons:

- 1) As the liquid level drops in the LCO₂ tank, the gaseous head space created as the liquid level drops is taken up via gaseous CO₂ molecules.
- 2) Siphon (aka: dip-tubes) does not reach the absolute bottom of the LCO₂ tank.

What should I do if a leak occurs during the FILL mode from the chamber lid?

Please reference appendix section “Autosamdri®-815B, Series A Leak Correction Protocol”.

What should I do if the initial COOL time is suddenly much slower than normal?

The majority of the time, the reason is lack of Liquid CO₂. The SAMDRI® is designed to COOL the process chamber via Liquid CO₂ and not gaseous CO₂.

Reasons that typically explain gaseous CO₂ delivery:

- 1) The Liquid CO₂ level has dropped below LCO₂ tank siphon (aka: dip tube) and only gaseous CO₂ is being delivered. [Note: The best way to monitor LCO₂ is via weight and not pressure. It is best to monitor tank weight via a “LCO₂ tank scale (trc#8770-54)”]
- 2) Gas supplier has delivered Gaseous rather than Liquid CO₂ by mistake. This can happen as the 2 tank types may look identical and the delivery/loading Gas Company staff accidentally delivered the wrong tank type to your site.

The simple solution is to replace the existing LCO₂ supply tank with a new LCO₂ tank and initiate COOL mode. If the same problem persists; please contact customer service at tel #301-881-2450 or techsupport@tousimis.com.

What can I do to check that the BLEED rate is properly set should it appear unusually slow?

The flow rate should read 40-50 SCFH at the onset of the BLEED cycle. This setting should yield at average of approximately 100-150 psi/min reduction in pressure. This pressure reduction flow rate is the desired decompression rate between 1300 → 400 psi to avoid condensation.

You may periodically measure the BLEED rate (if desired) via the Flow Meter supplied by attaching the Flow Meter to the CO₂ exhaust outlet via a short (approximately 2') piece of Tygon tubing.

Flow Meter



60 SCFH Flow Meter with 2ft tygon® tubing

The Flow Meter is provided to periodically check BLEED onset flow rate. This rate should be 40-50 SCFH at onset of BLEED mode immediately after 'tousimis equilibrium' period.

This does not have to be measured with each process run. The 815B has had the BLEED rate adjusted during final check-out prior to shipment. Periodic BLEED rate adjustment necessary only if either faster or slower than normal BLEED rate suspected by operator.

Consult tousimis® at tel #301-881-2450 or techsupport@tousimis.com with any questions.

How much LCO₂ will be consumed during a typically process run?

The LCO₂ consumption will vary depending upon the PURGE Time setting. You should be able to use either Pos#2 (10min) or Pos# 3 (15min) on the PURGE Timer for most sample processing. The typical consumption rate to PURGE - 150ml of alcohol at PURGE Timer Position #2 (10 min) would be the following:

COOL LCO₂ Consumption ~ 2.5lbs (1.14kg) / process run

CHAMBER LCO₂ Consumption ~ 2.5lbs (1.14kg) / process run

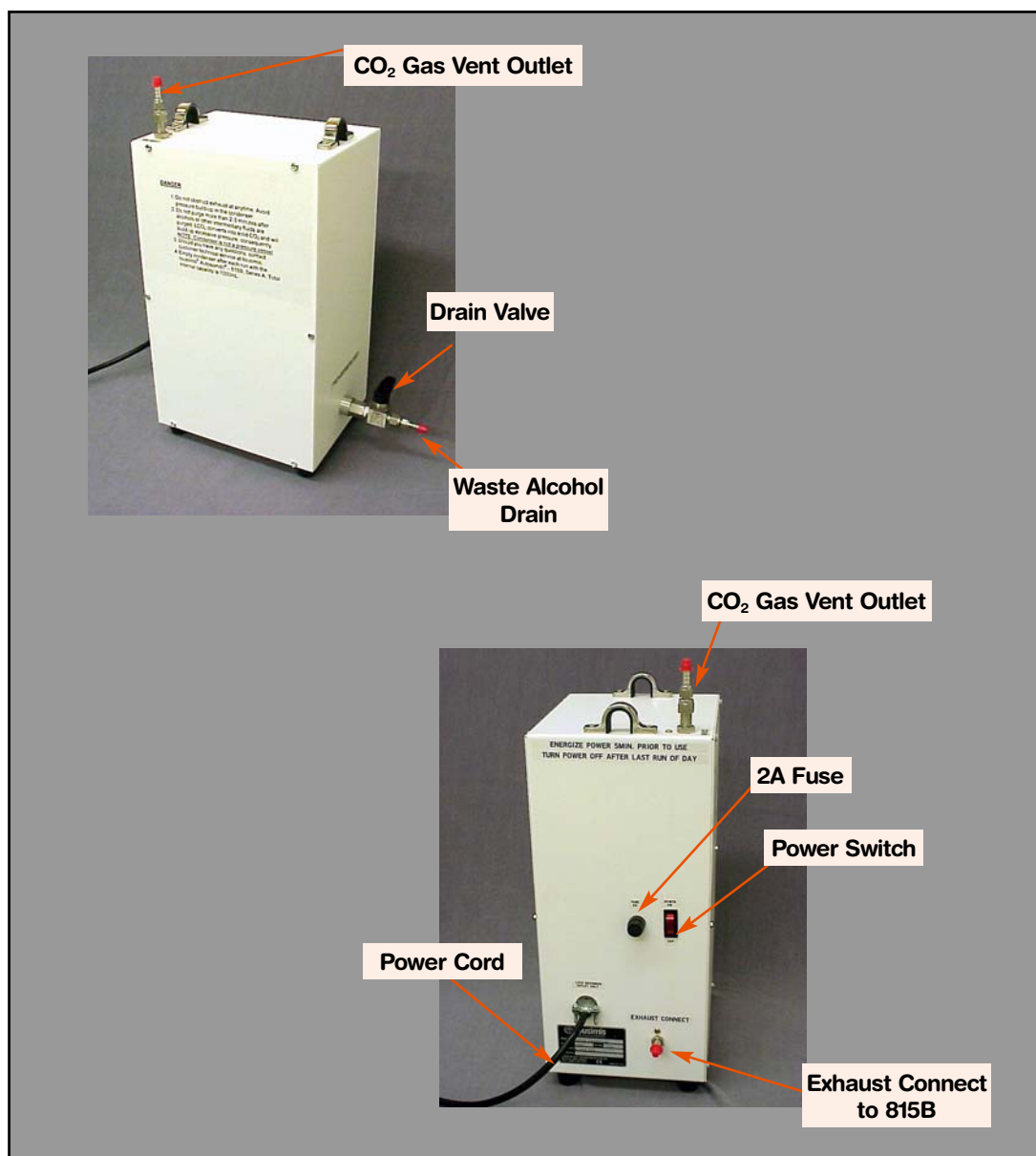
How frequently should the LCO₂ filter Element (trc# 8784A) be replaced?

The Filter Element #8784A should be replaced with every 500lbs (230kg) of LCO₂ consumption

What is the purpose of the SOTER™ Condenser?

A. The SOTER™ Condenser quietly captures and separates the exiting waste Alcohol and CO₂ from the process chamber. The SOTER™ Condenser vents CO₂ gas via the VENT OUTLET. This is ideally routed into your facility exhaust conduit. The waste alcohol is routed out of the SOTER™ Condenser's drain valve into either a waste alcohol collection container or a solvent drain.

SOTER™ Condenser



OPTIONAL ACCESSORIES

Catalog #	Description
8760-02	Knurl Nut for Autosamdri®-815B
8760-40	5 AMP Fuse
8770-10	Lamp, 120/60Hz volt
8770-32	High Pressure Hose, 5 ft
8770-33	High Pressure Hose, 10 ft
8770-HPS	High Pressure Hose, Custom Length Up To 10m (33ft)
8784	LCO ₂ Filter Housing for 8784A Filter Element
8784A	Replacement LCO ₂ Filter Element for 8784 Filter Housing
8784B	O-Ring for 8784 Filter Housing Seal
8784-05	Gasket for LCO ₂ Tank Connect
8783	LCO ₂ Filter Adapter Kit
8770-51T/815B	Teflon® O-Ring for Autosamdri®-815B
8770-53	Power Cable, three prong, 120V/60Hz
8770-54	LCO ₂ Tank Scale, w/ Remote LCD Display (400lb capacity)
8770-55	LCO ₂ Tank Heater
8770-56	Step-Down Transformer, 220V → 110V
8770-57	Step-Up Transformer, 100V → 120V
8770-60	Chamber Lid for tousimis Autosamdri®-815B, Series A
8770-83	Internal 0.5 µm Brass Particulate Line Filter
8770-83B	External 0.5µm Particulate Line Filter
8761	Grid Holder, holds 12 grids.
8762	12 Sample Holder, each compartment measures 7.5 (dia.) x 6mm (ht.)
8763	24 Sample Holder, each compartment measures 4.5 (dia.) x 6mm (ht.)
8764	4 Sample Holder, each compartment measures 9 (dia.) x 16mm (ht.)
8766	Cover Slip Holder, for 9mm to 13mm diameter Glass Cover Slips
8766-01	Washer for Glass Slip Holder (for use with #8766)
8766-02	Stainless Steel Screens for Cover Slip Holder (for use with #8766)
8767	Cover Slip Holder, for 16mm to 22mm diameter Glass Cover Slips
8767-01	Washer for Glass Slip Holder (for use with #8767)
8767-02	Stainless Steel Screens for Cover Slip Holder (for use with #8767)

Contact tousimis at tel.# 301-881-2450 or trc@tousimis.com for current pricing and availability.

WARRANTY

The Autosamdri®-815B, Series A is warranted to the original purchaser for two years from date of purchase against any defect in materials or workmanship. Should you have any questions, please feel free to contact us. If it is determined that the unit should be returned for repairs to our Service Department, we will send a written authorization for shipment. Parts and labor are free of charge; shipping charges are to be paid by customer (insure instrument at current list price).

DO NOT ship instrument via U.S. Mail. Use UPS, FedEx or other qualified shippers only.

Our mailing address: **tousimis research corporation**
2211 Lewis Avenue
Rockville, Maryland 20851
USA

Our shipping address: **tousimis research corporation**
Attention: Instrument Service Department
2211 Lewis Avenue
Rockville, Maryland 20851
USA

Telephone # 301-881-2450 Fax #301-881-5374 Email: techsupport@tousimis.com

REPACKAGING FOR SHIPMENT

After authorization for repairs is received (see warranty), this general rule may be followed in repackaging a tousimis® instrument for shipment:

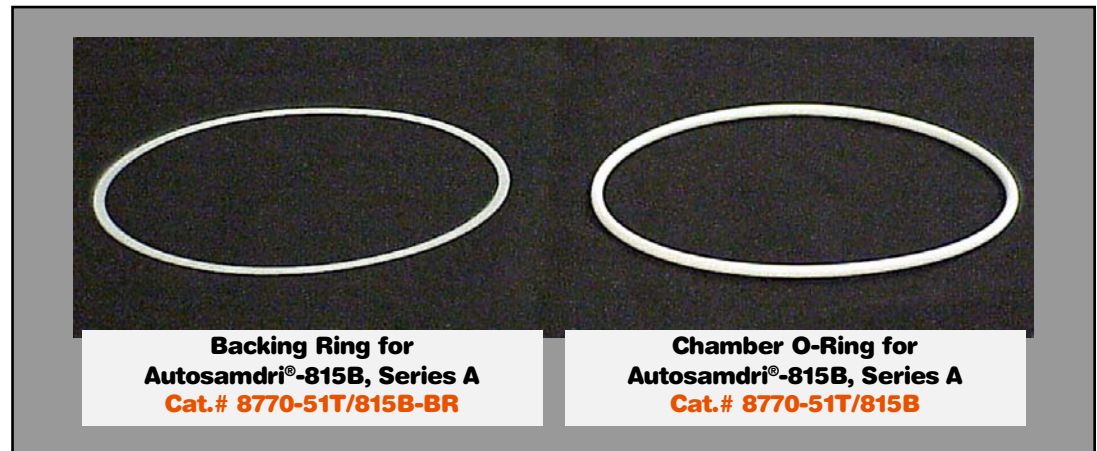
- a) Attach identification tag to instrument. Tag should indicate owner name, the model and 4-digit serial number of the instrument, and the type of the service or repair desired.
- b) Secure chamber lid over a properly seated O-ring and tighten 6-knurl nuts evenly. Do not send the high-pressure hose or electrical power cord.
- c) Place instrument in original container, if available. If original container and packaging material is not available, new packaging may be purchased from tousimis

If original container is not used,

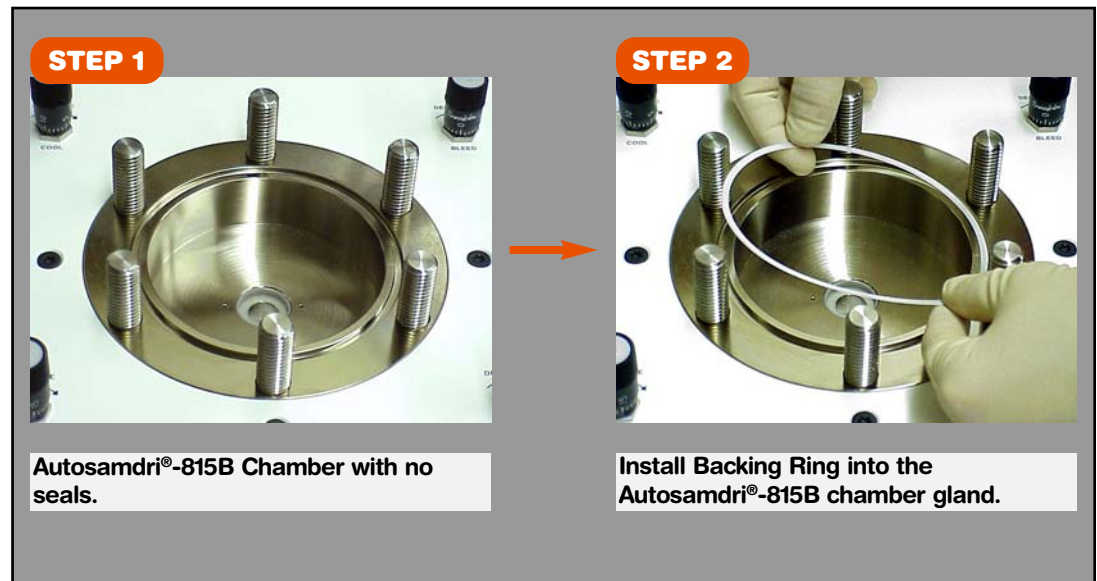
- d) Wrap the instrument in bubble plastic.
- e) Protect panel faces and instrument sides with foam or appropriate non-abrasive cushioning material. Use sufficient shock-absorbing packing material around all sides of the instrument. A minimum of two double walled boxes are required for shipment; BOX-WITHIN-A-BOX AT 350LBS. TEST STRENGTH.
- f) Use heavy duty shipping tape or metal bands to seal container.
- g) Mark shipping container with "Delicate Instrument, Fragile", etc. and insure it.

Backing Ring and Chamber O-Ring Installation

Backing Ring and Chamber O-Ring Overview



Chamber Seal Installation



Chamber Seal Installation

STEP 3



Autosamdri®-815B Chamber with Backing Ring.

STEP 4



Next, carefully install a new Chamber O-Ring on top of the Backing Ring.

STEP 5



Autosamdri®-815B Chamber with O-Ring installed on top of Backing Ring.

Chamber Seal Removal

STEP 1



Lift O-Ring and Backing Ring from the chamber gland using a razor blade edge. Be careful to prevent any scratching of metal chamber surface with razor blade.

STEP 2



Carefully lift both Rings from the chamber gland.

STEP 4



Separate Backing Ring from O-Ring. The Backing Ring is reusable*. Only O-Ring needs to be replaced.

STEP 3



Completely remove Backing Ring and O-Ring from the Autosamdri®-815B chamber.

STEP 5



Re-Install Backing Ring into Autosamdri®-815B chamber gland.

STEP 6



Install a new O-Ring into the Autosamdri®-815B chamber gland on top of Backing Ring.

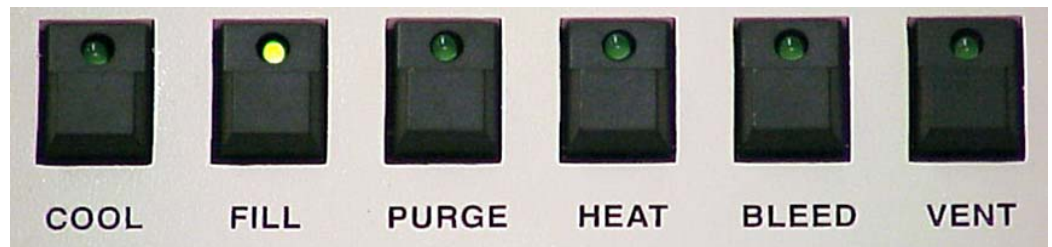


NOTE:

* DO NOT DISCARD
BACKING RING

Leak Correction Protocol

1. If a leak is detected during initial FILL mode; it will typically be noticed between the 400-600 psi range.



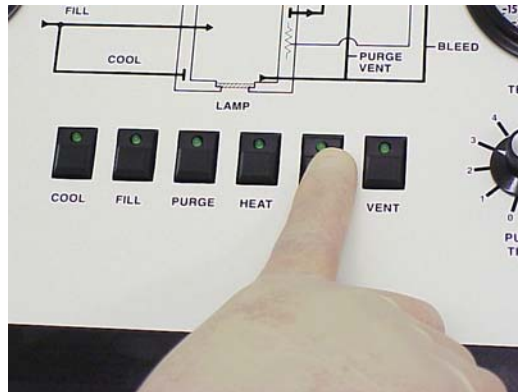
2. Turn OFF the Power Switch located on right hand side of Autosamdri®-815B. This will isolate the chamber from any liquids coming in or out by immediately closing all solenoid.



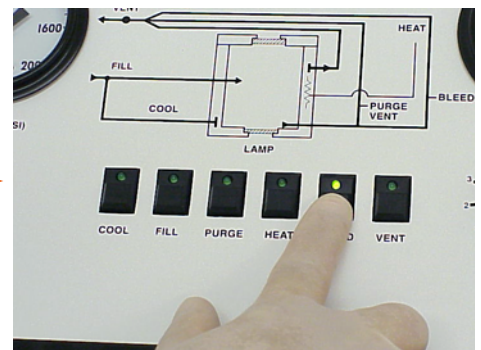
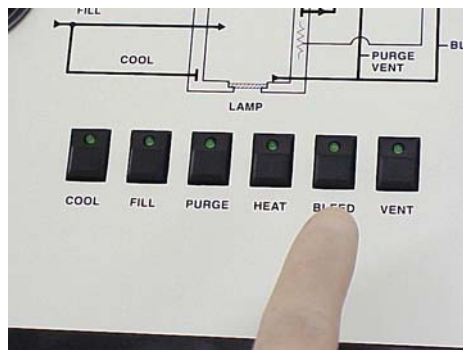
3. Wait 15 seconds and then simultaneously push BLEED switch while turning Power Switch “ON” as shown below. This is how the Autosamdri®-815B can be placed into a “Manual Mode” of operation.



4. Hold finger on BLEED switch for 15 seconds.



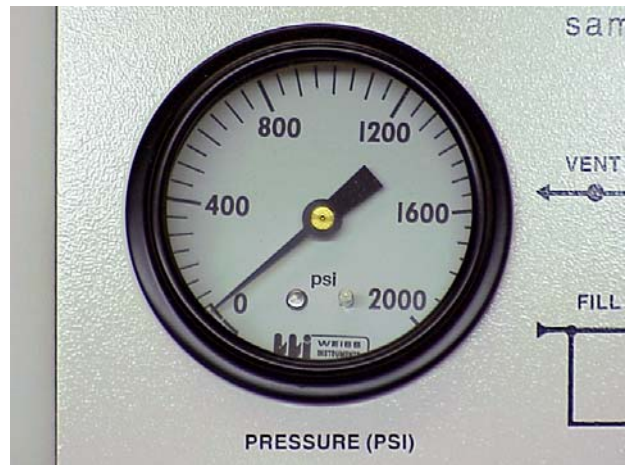
5. Release the BLEED switch and press again.
BLEED switch LED will go ON



6. Now the Autosamdri®-815B is in the “Manual Mode”. Open the BLEED meter valve to accelerate the decrease in chamber pressure to “0 psi” (See illustration p.15). This decreases the wait prior to opening the chamber lid.

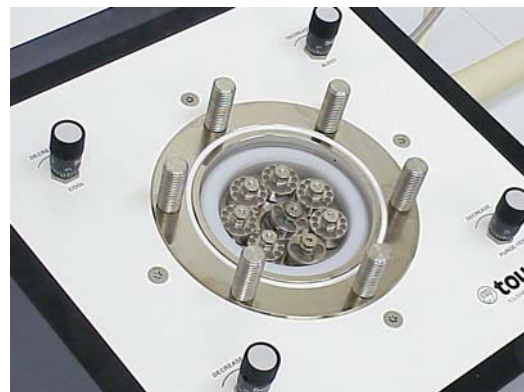
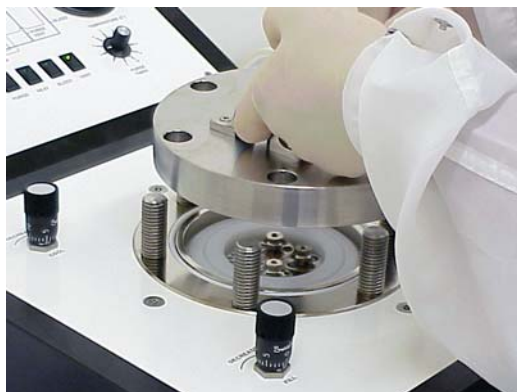


BLEED Meter Valve



0 psi

7. Carefully remove the chamber lid from Autosamdri®-815B. It is normal to see little bubbles in the intermediate fluid (i.e.: I.P.A., methanol). This is due to carbonization.



8. Carefully replace chamber o-ring as shown below (Step #1 – Step #6).

Replacing Chamber O-Ring

STEP 1



Lift O-Ring and Backing Ring from the chamber gland using a razor blade. Be careful to prevent any scratching of metal chamber surface with razor blade.

STEP 2



Carefully lift both Rings from the chamber gland.

STEP 4



Separate Backing Ring from O-Ring. The Backing Ring is reusable*. Only O-Ring needs to be replaced.

STEP 3



Completely remove Backing Ring and O-Ring from the Autosamdri®-815B chamber.



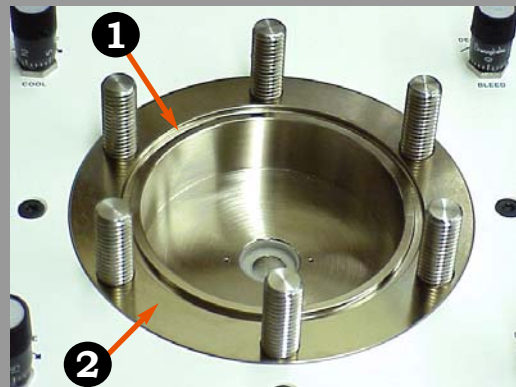
NOTE:

* DO NOT DISCARD
BACKING RING

Replacing Chamber O-Ring

Thoroughly dry all chamber surfaces and gland prior to installing a new chamber o-ring.

- 1 Gland
- 2 Face Surface



STEP 5



Re-Install Backing Ring into Autosamdri®-815B chamber gland.

STEP 6



Install a new O-Ring into the Autosamdri®-815B chamber gland on top of Backing Ring.

9. Close chamber lid to the Autosamdri®-815B and secure it as per normal.



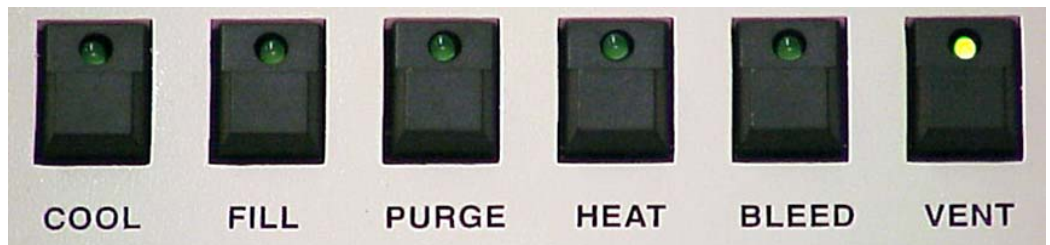
10. Turn Power Switch “OFF”. This will take the Autosamdri®-815B back out of the “Manual Mode”.



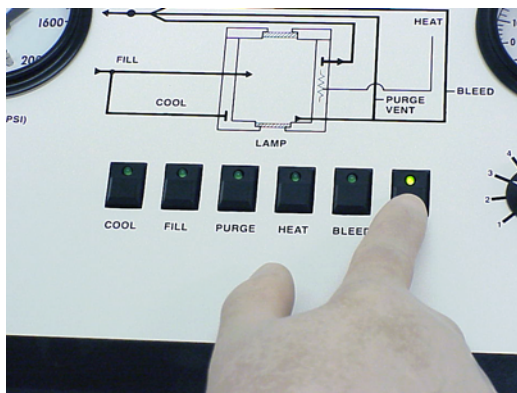
11. Wait 15 seconds prior to turning Power Switch back “ON”. This will power the Autosamdri®-815B back up into the normal “Auto Mode” of operation.



12. The VENT switch LED will illuminate.

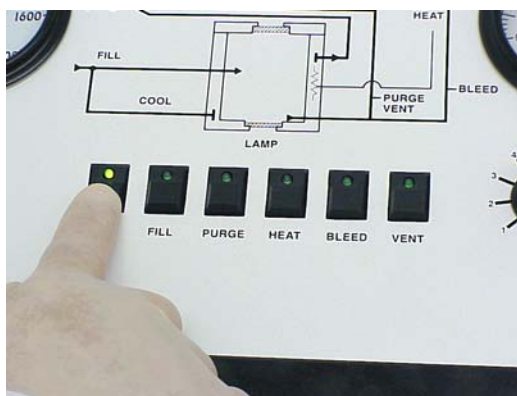


13. Press the VENT switch once as soon as the VENT LED is illuminates when the power is turned ON. This will initiate the VENT LED to blink, ON and OFF. This is the “Standby Mode” prior to initiating a run.



14. Prior to initiating another process run, remember to reset the BLEED metering valve to its original Pre-Set position. Reference Checkout Data Sheet BLEED Meter valve setting.

15. Press the COOL Switch to initiate another process run. Operate as per nominal from this point forward.



Purge Line Filter Maintenance



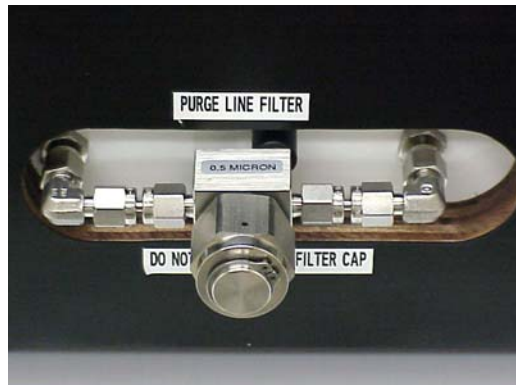
NOTE:

The Purge Line Filter may fill with downstream sample debris from the process chamber. It is recommended to replace filter element with a new one every 3-6 months depending on usage.

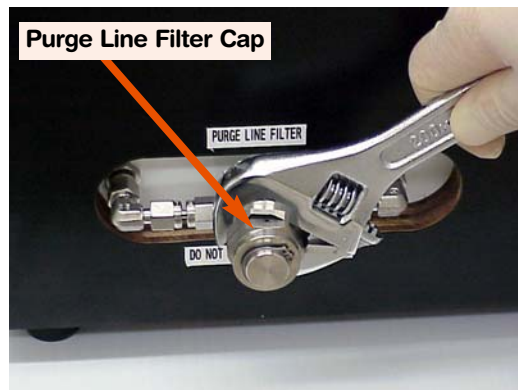
1. Turn the power switch "OFF" and unplug 120V power cord from the Autosamdri®-815B.



2. Locate the External Purge Line Filter on the right side of the Autosamdri®-815B.

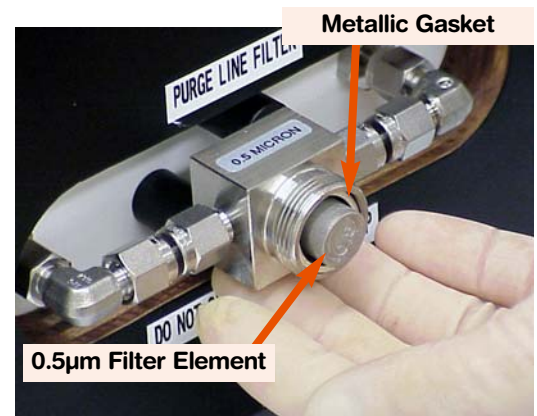


3. Using an adjustable wrench, carefully un-tighten the Purge Line Filter Cap. Upon loosening Cap, unscrew with your hand to remove.

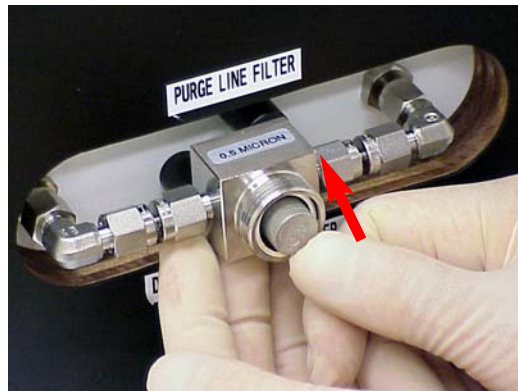


Purge Line Filter Maintenance

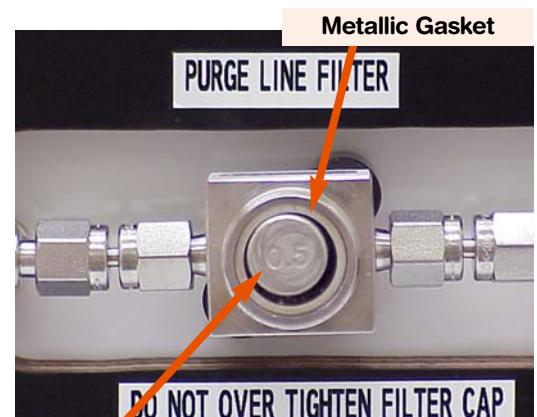
4. There is a metallic gasket enabling the seal (see picture below). Please be careful not to drop the Gasket to the floor.



5. Carefully remove old Purge Line Filter and discard. Slight “side-to-side” motion may be necessary to “unseat” Filter Element.

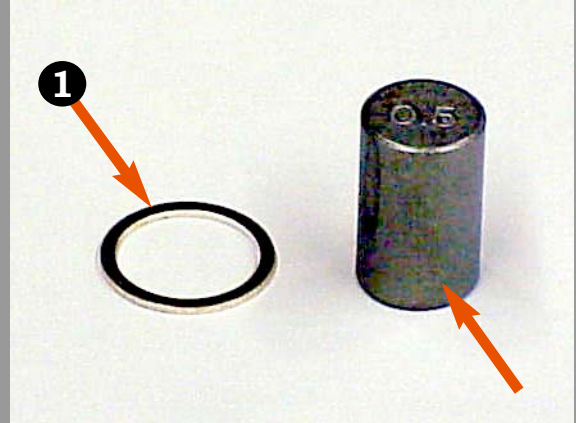


6. Install a new Purge Line Filter Element (Cat# 8770-83B) paying attention to relocate the existing Metallic Gasket to insure a leak-free seal.



Purge Line Filter Element

- 1 Purge Line Filter Metallic Gasket
- 2 Purge Line 0.5 μ m Filter Element (Cat. # 8770-83B)

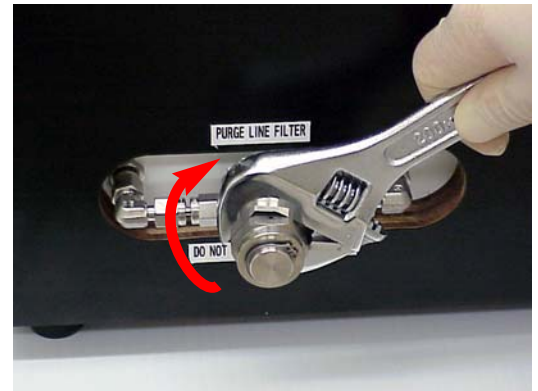


7. Place Filter Cap back onto filter housing and begin to re-assemble by hand. Tighten Purge Line Filter Cap with an adjustable wrench.

DO NOT OVER-TIGHTEN FILTER CAP.



NOTE:
Snug Filter Cap without excessive force as mounting bracket damage could result.



It is recommended that the "Purge Line 0.5 μ m Filter Element" be replaced every 3-6 months with regular use. Change more frequently with heavy use.

Please contact tousimis Technical Support with any questions:

Tel.# 301.881.2450, 9am-5pm EST (M-F)

Fax # 301.881.5394

Email: techsupport@tousimis.com



ILLUSTRATION INDEX

Autosamdri®-815B, Series A

- COOL/BLEED Exhaust Hose, Connect, 7
- Dryer, 2
- High Pressure Hose Connect, 5
- Inlet/Outlet Connect, 5
- Inlet/Outlet Set-Up, 7
- Metering Valve w/ Vernier Handle Setting Example, 16
- Overview, 2
- Plugging Power, 10
- Power Panel, 10
- Purge Timer Overview, 16
- Setting Purge Timer, 12
- Setup Overview, 3
- Star-Pattern, 12

Autosamdri®-815B, Series A Operational Mode

- BLEED Mode, 14
- COOL Mode, 13
- FILL Mode, 13
- HEAT Mode, 14
- PURGE Mode, 13
- POST-PURGE-FILL Mode, 14
- VENT Mode, 11, 15

Backing Ring

- Overview, 29

Chamber Care, 21

Chamber Inserts, 17

Chamber O-Ring

- Overview, 29
- Replacing, 31

Chamber Seal

- Installation, 29
- Removal, 31

Connecting Autosamdri®-815B, Series A and SOTER™ Condenser, 6

Flow Meter, 25

LCO₂ Filter Assembly, 20-21 / LCO₂ T-Filter Element Installation, 22

Pressure Gauge

- 0 psi, 15

Purge Line Filter

- Element, 40
- Installation, 39-40
- Removing, 38-39

SOTER™ Condenser

- Exhaust Connect Overview, 8
- Connecting Exhaust Tubing, 9
- Connecting Drain Tubing, 9