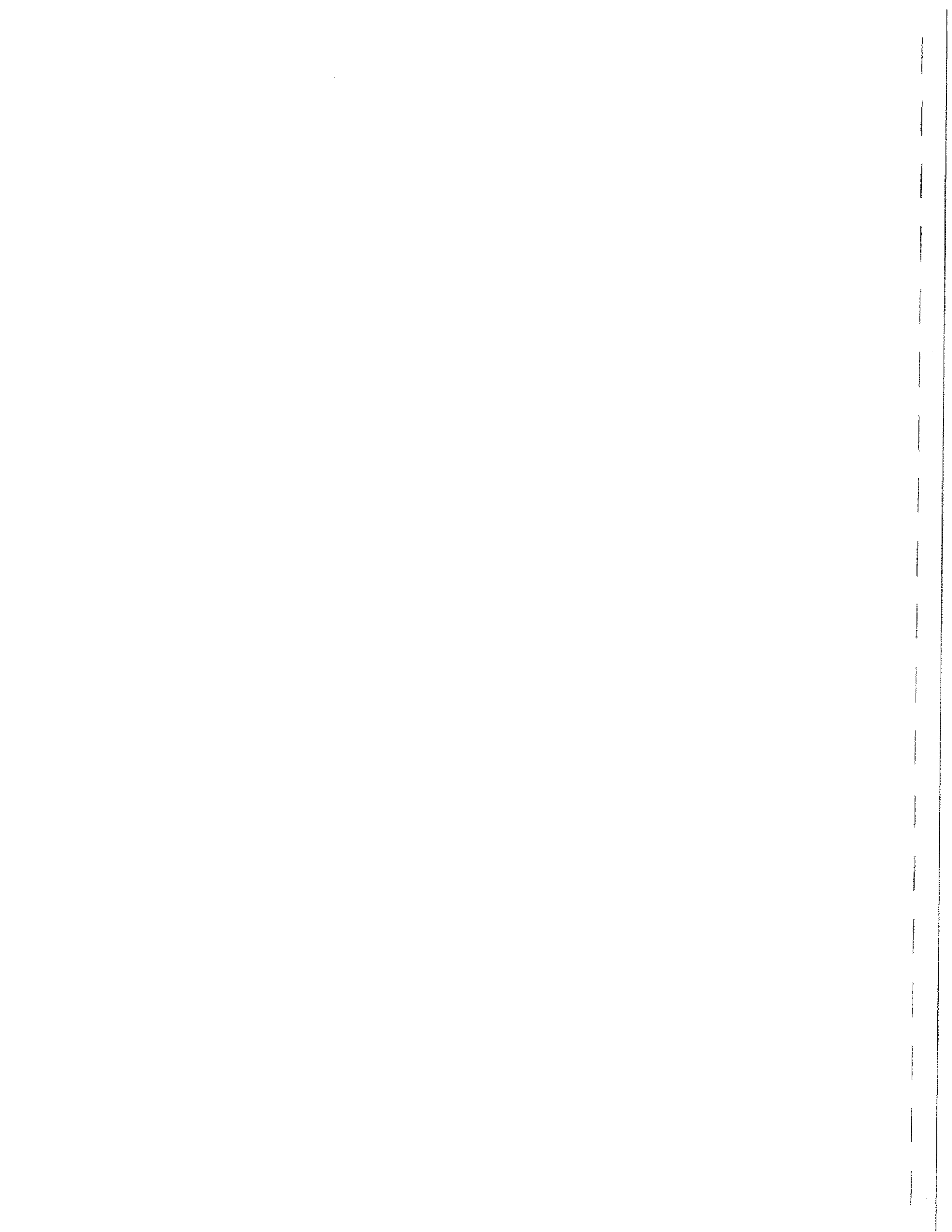


Installation, Operation, and Service Manual



Carbo-Draught Pro Mixed Gas Dispense System





Section 1 Introduction

The Carbo-Draught Pro mixed gas dispense system extracts nitrogen (N_2) from ambient air, blends it with carbon dioxide (CO_2) and supplies the mixed gas to a beer dispense system. As a component of a properly designed and maintained beer system, the Carbo-Draught Pro assures brewery quality beverage presentation while it eliminates excessive foaming and wasted beer.

The Carbo-Draught Pro uses proven Pressure Swing Adsorption (PSA) technology with a Carbon Molecular Sieve (CMS) to separate N_2 from the atmosphere and store it at a purity level of at least 99.8%. It uses a McDantim blender to combine the N_2 with CO_2 from another storage vessel into two CO_2 / N_2 "beer gas" blend ratios of 25% / 75% and 60% / 40% respectively. These blends are consistent and accurate to within 2% CO_2 of each blend ratio.

This manual contains the information necessary for the correct use of the Carbo-Draught Pro unit. Should any questions arise regarding safe and proper installation, operation or maintenance of the Carbo-Draught Pro, contact the **supplier** before proceeding.



Warning: Ensure that all personnel involved in the installation, operation and maintenance of the Carbo-Draught Pro unit, as well as those persons who will act as supervisory personnel, have read and fully understand the instructions before attempting to install, operate or perform maintenance on this Carbo-Draught Pro unit.

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Section 3 – Alert Symbols Used Throughout This Manual



WARNING: The WARNING symbol draws attention to an operating procedure or practice that can cause injury if it is not observed or performed correctly. Do not continue past a WARNING symbol until you have fully understood or satisfied the indicated conditions.



CAUTION: The CAUTION symbol draws attention to an operating procedure or practice that can damage the unit if it is not observed or performed correctly. Do not continue past a CAUTION symbol until you have completely understood or satisfied the indicated conditions.



NOTE: The NOTE symbol draws attention to information that is especially important to an operating procedure or a practice that is advisable to perform correctly or observe correctly, but that cannot damage the unit.

Section 4 - Safety Warning



Do not operate the Carbo-Draught Pro unit until the information contained in this document has been read and understood by all personnel concerned.

The unit should be connected to an electrical supply in accordance with local safety regulations. Ensure that the rating plate corresponds to the supply voltage.

Ensure that the unit is grounded.

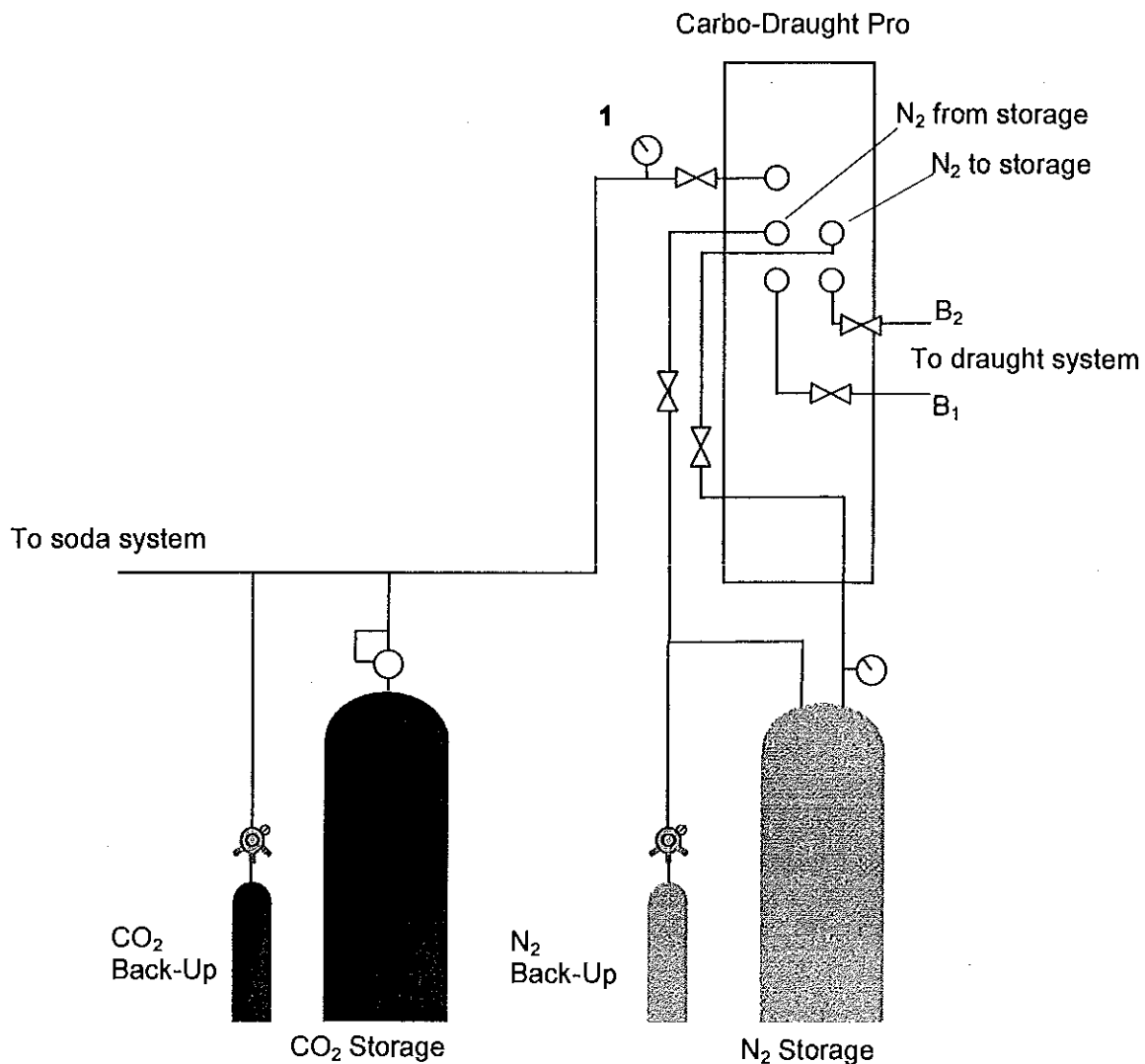
Nitrogen (N₂) & carbon dioxide (CO₂) are not poisonous gases but in a concentrated form present a risk of asphyxiation. The Carbo-Draught Pro unit produces a small flow of mixed gases that quickly disperse in the atmosphere. However, do not directly inhale any gases produced by the Carbo-Draught Pro unit.

Before service or maintenance is performed on the Carbo-Draught Pro unit, the electrical supply must be switched off and the main electrical lead disconnected. All personnel handling, using or maintaining the Carbo-Draught Pro unit must employ safe working practices and observe all relevant local health and safety regulations.

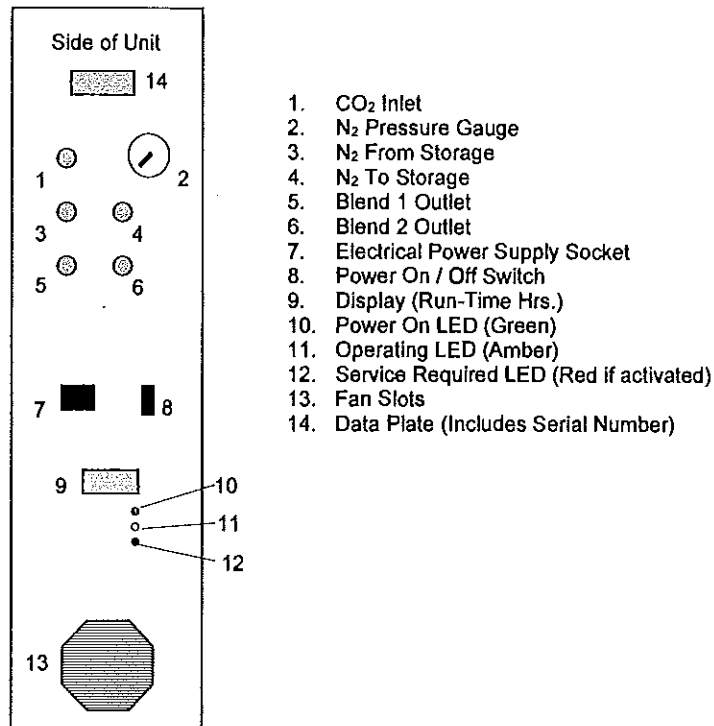
Section 5 - General Information

- 1.) CO₂ is supplied from a bulk storage vessel. N₂ is produced within the unit by separating it from the atmosphere using a Carbon Molecular Sieve (CMS). It is stored in a receiver vessel. **While producing N₂ the unit will depressurize approximately every two minutes, resulting in an audible pulse of gas, which is normal.**

Schematic A



Schematic B



Carbo-Draught Pro

- 2.) The Carbo-Draught Pro unit is designed to produce two different mixtures of carbon dioxide (CO₂) and nitrogen (N₂) simultaneously at pre-determined ratios.
Blend 1 = 25% CO₂ / 75% N₂
Blend 2 = 60% CO₂ / 40% N₂
- 3.) The Carbo-Draught Pro unit is classified as non-hazardous for transportation purposes and non-flammable for fire regulations.



Any interference with the calibration warning labels will invalidate the Carbo-Draught Pro unit warranty and may incur costs for re-calibration.

Section 6 – Emergency Procedure in the Event of System Pressure Loss

- Check the on/off switch (No.8 on Schematic B) on the side of the Carbo-Draught Pro unit to ensure it is ON, and ensure the green LED (No. 10 on Schematic B) is illuminated. If the green LED is not illuminated, check that the power cord is securely connected to the unit and to the power supply outlet and that the external fuse or circuit breaker has not tripped.
- Check the keg tap couplings to be sure they are secure.
- Check the CO₂ inlet gauge on the unit (location No. 1 on Schematics A & B), to verify that the supply pressure is at least 60 psig (4.1 barg). If the gauge pressure is low, switch to the regulated back-up cylinder (if equipped). With assistance from your service supplier, determine and correct the cause of low CO₂ supply pressure.
- Check the N₂ supply pressure (No. 2 on Schematic B) to verify that it is above 60 psig (4.1 barg). If the pressure is below this figure, bring the regulated back-up cylinder (if equipped) into service. Call for assistance from your supplier to determine and correct the cause of low N₂ pressure.



If either the CO₂ supply or the N₂ supply stops, the blender within the Carbo-Draught Pro will stop supplying gas to the beer dispense system. Blend production will resume when gas pressure is restored.

If either of the gas input supply pressures drops but stays above keg pressure, the blender will continue to produce blended gas, but at a corresponding slower rate and with less blend accuracy.

Section 7– System Leaks



If a loss of pressure is due to obvious leakage or rupture of a gas supply line, take the following actions:

- Do not enter the area of leakage until it is safe to do so (refer to supplier Material Safety Data Sheets).
- Ensure the area is well ventilated before entering.
- Turn off all cylinders if they are accessible and away from the area of leakage.
- Switch off the Carbo-Draught Pro unit.
- Contact your service supplier for advice.

Section 8 – Product Specifications

- **Model:** Carbo-Draught Pro (Part No. 11670384)
- **Dimensions:** Height (incl. mtg. brackets) = 37.4 in (951 mm)
Width = 12.8 in (325 mm)
Depth (incl. mtg. brackets) = 7.4 in (187 mm)
- **Total Weight:** Approx 75 lb (34 kg)
- **Cabinet Materials:** Steel, powder coated white
- **Mounting Hole Spacing:** 10 7/16 in (Horizontal) center-to-center
- **Electrical Power Supply:** 115 Vac 60 Hz
- **Ambient Temperature:** 36 to 95⁰ F (+2 to + 35⁰ C)
- **N₂ Storage Vessel Size:** 35 gal (approx. 132 liters)
- **N₂ Flow Rate:** Approximately 0.07 cfm (2 liters / min)
- **Nitrogen Purity:** >99.8% (<0.2% oxygen)
- **N₂ Storage Generation Cycle Start Pressure:** 94 psig (6.5 barg)
- **Max N₂ Storage (Generation Cycle Stop) Pressure:** 102 psig (7.0 barg)
- **Stored N₂ Volume @ Max Press:** 32.3 ft³ (approx. 915 liters)
- **CO₂ Gas Requirement:** 84 +/- 3 psig (5.5 to 6.0 barg)
- **Mixed Blends (CO₂ / N₂):** (25% / 75%) & (60% / 40%)
- **Blend Outlet Pressure:** 72.5 psig (5 barg)
- **Inlet and Outlet Bulkhead Port Size:** ¼" NPT female

Section 9 - Unpacking the Carbo-Draught Pro

Remove the items from the box and check for damage. The box contains one Carbo-Draught Pro unit, a manual, and a bag containing a power cord. If any of the items are in a damaged condition, request an immediate inspection by the carrier. If any items are missing, please contact your Chart representative.

Section 10 - Installation and Operation

Mount the Carbo-Draught Pro onto the Wall

The location for mounting the Carbo-Draught Pro unit should be indoors in an area that is well ventilated and where the ambient temperature is between 36°F and 95°F. Ensure that the wall or supporting member of the wall is capable of bearing 75 lb (34 kg). The mounting location must have access to a 115V ac electrical supply with a three-pin socket. Ensure that the electrical supply circuit has adequate capacity for consistent power supply to the compressor motor. Ensure also that a properly regulated CO₂ source and a N₂ storage tank will be convenient to the location of the Carbo-Draught Pro unit (Schematic A). Make sure the mounting position allows access to the side of the unit for making connections and for viewing operational displays.



The attachment means must be suitable for the type of wall construction and capable of supporting the full weight of the Carbo-Draught Pro unit, which is approximately 75 lb.

PLEASE WEAR SAFETY GOGGLES WHILE INSTALLING THE UNIT.

- 1.) **The Carbo Draft Pro must be mounted in a vertical position.** Using a (bubble) level, determine and mark a horizontal line along which the upper mounting holes of the Carbo-Draught Pro will be located.



To ensure proper anchorage to a framed wall, use a mounting board, or two horizontal mounting boards; one each for the unit's upper mounting holes and lower mounting holes. Make sure that each mounting board is fastened to two wall support members (studs). (Spacing between the upper and lower mounting holes on each side of the unit is 36 3/8 inches, from center to center.)

- 2.) Mark two points 10 7/16 inches apart along the upper horizontal mounting line on the mounting surface. *Horizontal spacing between the unit's mounting hole centers is 10 7/16 inches.* At each point drive a No. 10 screw (not provided) leaving a space of about 1/8 inch between the screw head and the mounting surface. (If mounting the unit to a concrete (block) wall, use appropriate anchors.)

- 3.) Match the upper mounting holes of the Carbo-Draught Pro to the screw heads and carefully hang the unit. Anchor the bottom of the unit to the mounting surface using No. 10 screws. Carefully tighten all mounting screws.



Ensure that there are no electrical devices below the Carbo-Draught Pro unit, as condensate (water) may drip from the Carbo-Draught Pro unit.



The use of noxious chemicals or machinery that produces fumes is not permitted within a 20 ft. radius of the Carbo-Draught Pro unit.

Prepare the Unit for Operation

After the Carbo-Draught Pro unit has been secured to the wall, take off its cover by removing the (11) screws that hold it in place. **Note:** Before removing the cover completely, disconnect the grounding wire located on the inside near its lower left corner as you face the unit. Carefully remove the protective foam packing. Notice that a retaining strap is fitted around the compressor for stability during transportation. Locate this black (hook and loop) strapping under the base of the Carbo-Draught Pro unit, unhook it and pull the strapping out of the unit. Reattach the grounding wire and replace the cover.

Supplies To Have On Hand (Not Supplied With Carbo-Draught Pro Unit):

- Beverage Tubing 1/4" ID (Chart P/N 2811606)
- Hose Clamps (Oetiker #14) for 1/4" tubing (Chart P/N 3411511)
- Hose Barb Fittings (1/4" x 1/4 NPT) (Chart P/N 1611322)
- Isolation (Ball) Valves (1/4 MPT x 1/4 FPT) (Chart P/N 1716162)
(One recommended in each line to facilitate pressure tests and to isolate components for service and switch-over)
- Pressure Gauge,* 0 -160 psig (1/4" CBM) (Chart P/N 10919416) or
- Pressure Gauge,* 0 -160 psig (1/4" bot mount) (Chart P/N 2014649)
- Street tee (1/4" NPT) (Chart P/N 1211702)
(For connection of CO₂ supply line gauge)
- Cross (tee) (1/4" FPT) (Chart P/N 1210762)
(For in-line connection of optional back-up gas cylinders)
- 1/2" PTFE thread sealant tape



* Chart recommends the use of a pressure gauge at the CO₂ inlet port (No. 1 on Schematic A) to assure that at least 90 psi supply pressure is being delivered to the unit. CO₂ pressure is regulated internally to ensure blend purity.

Install External Isolation Valves and N₂ Storage and Optional Back-Up Tanks

- 1.) Connect the "N₂ To Storage" port of the Carbo-Draught Pro with the inlet port on the N₂ storage tank using ¼" I.D. beverage tubing, hose barb fittings and stepless clamps. Installation of an 'in-line' isolation valve is recommended. The MVE N₂ storage tank is already equipped with this isolation valve. **Open this valve.**
- 2.) Connect the outlet port of the N₂ storage tank with the "N₂ From Storage" port on the Carbo-Draught Pro using ¼" I.D. beverage tubing, hose barb fittings and stepless clamps. Installation of an in-line isolation valve is recommended either at the outlet port of the N₂ storage tank or the "N₂ From Storage" port on the Pro. The MVE N₂ storage tank is already equipped with this isolation valve. **Close this valve.** (An optional, regulated back-up N₂ cylinder can be connected in-line using a barbed tee connection. Ensure the back-up cylinder's gas supply valve is turned off.)
- 3.) Attach isolation valves to the CO₂ Inlet port and to the outlet ports for Blend 1 and Blend 2 on the Pro. **Close these valves.** Now the Carbo-Draught Pro is ready to begin N₂ generation for the storage tank.



Note: The Pro unit will require 6 to 7 hours to fully pressurize an "empty" storage tank to approximately 102 psig. Chart recommends, to save time, that the storage tank be pre-pressurized to 70 - 80 psig using a regulated supply of N₂ from a high-pressure cylinder. To complete the storage tank pressurization the Pro unit should be operated to assure that the system is performing properly and is ready to be put into service. It should pressurize at a rate of about 7 psig per 30 minutes. (If the storage tank is pre-pressurized to 94 psig or higher the unit will not begin its N₂ generation cycle until the storage pressure is dropped below 94 psig.)

Electrical Power-Up



The unit must be connected to a suitable, 115V ac grounded, electric supply in accordance with local safety regulations. Ensure the rating plate corresponds to the supply voltage.

Ensure there is power at the 3-pin (grounded) socket. Using the power cord supplied with the Carbo-Draught Pro, connect the unit to the power supply. Switch the ON/Off Main Switch to the "ON" position and ensure that the green LED illuminates. *Note: The amber LED illuminates indicating that the system is in the charge mode.* The fan motor will start immediately and after approximately 120 seconds the on-board compressor will start. The nitrogen generation process will consist of approximately a 2-minute compressor run time alternating with an exhaust time of about 1½ minutes. An audible pressure release will indicate that the unit is producing N₂. This audible cycle will continue until the N₂ storage vessel is fully pressurized (to approximately 102 psig).

Locate and Connect CO₂ and Blended Gas Lines

- 1.) While the N₂ storage tank is being pressurized, locate and label a connection point to the main CO₂ supply line. Ensure that the CO₂ supply pressure is at least 90 psi. Identify the blend gas connection points to the draught beer system. To minimize draught system down-time, make the CO₂ supply connection and the blend gas connections after the N₂ storage tank is fully pressurized.



Be sure the gas supply from the CO₂ storage vessel is turned off before making the CO₂ connection. Relieve existing line pressure.

- 2.) Connect the CO₂ inlet of the Carbo-Draught unit with the CO₂ supply line at the designated CO₂ supply connection point using beverage tubing, hose barb fittings and stepless clamps.



Ensure that Blend 1 (25% CO₂ / 75% N₂) is routed to the nitrogenated (low CO₂ content) beer gas line and that Blend 2 (60% CO₂ / 40% N₂) is routed to the line for dispensing beer brands of higher carbonation. Final connections and leak testing should be done when the establishment is closed or when no beer is being poured.

- 3.) Relieve pressure at the gas connection points. Avoid depressurizing the kegs. Connect the blend-gas lines from the Carbo-Draught unit to the designated beer gas connection points using beverage tubing, hose barb fittings and stepless clamps.

- 4.) Restore the main CO₂ supply pressure. Open the "CO₂ Inlet" valve on the Pro. Open the "N₂ From Storage" valve. **(Now all isolation valves except the blend outlet isolation valves should be open.)** Observe pressure gauge(s) and examine all connections for leaks. When the N₂ storage tank is fully pressurized and the N₂ pressure gauge remains steady, the Carbo-Draught unit should be in the "rest" mode. At this point the amber LED will be off and the compressor will be off. If the N₂ pressure falls while the blend outlets are closed this is an indication of leakage in the upstream connections or within the Carbo-Draught unit. Locate and correct the leak(s).

To check for leaks in blend-gas lines to the beer system, open the blend-gas outlet isolation valve(s) to pressurize the system. Ensure that no beer is being dispensed. The N₂ pressure gauge may show a small pressure drop at first but should stabilize. Blend-gas line pressure gauges should be stable. If pressure continues to drop, locate and correct the leak(s). (Ensure that all beer keg couplings are secure.)



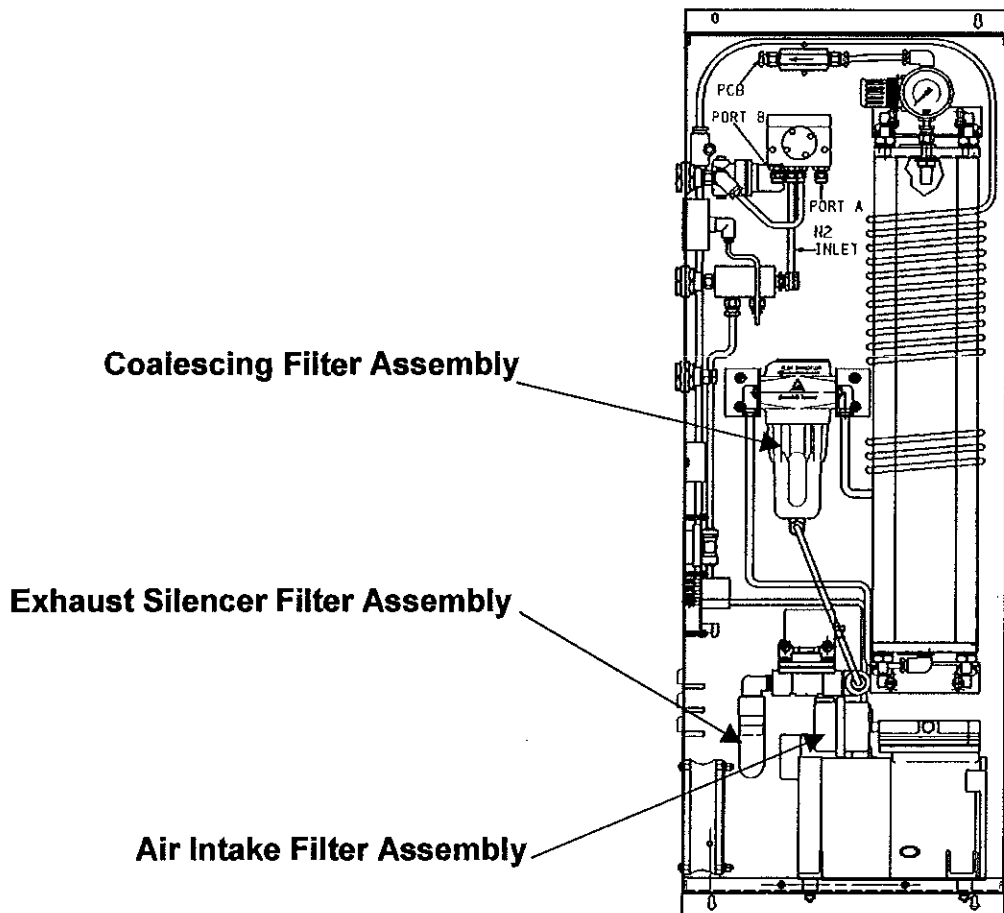
The beer-gas system may have leaked before the Carbo-Draught unit was installed. The leak(s) likely were not noticed (except through excessive gas consumption). If that is the case, the Carbo-Draught's compressor may run excessively or appear to be unable to keep the N₂ storage tank fully pressurized during off-business hours. Check all gas line connections, including the keg couplings, for leaks.

Section 11 - Maintenance

- ⚠ Before performing maintenance, turn off the Carbo-Draught Pro unit and disconnect the main power supply.
(Note: The green, main power-on light extinguishes).
- ⚠ Failure to perform specified service may result in damage to the Carbo-Draught Pro unit and may invalidate any warranty. Use only genuine parts as supplied by your Carbo-Draught Pro supplier.

The quality and reliability of the Carbo-Draught Pro unit is maintained through preventive maintenance performed on a scheduled, regular basis. Although the frequency of this maintenance is determined by conditions of particular use, CHART recommends filter changes at least every twelve months. **Keep a written record of all maintenance activity.**

Annual Filter Service Requirement



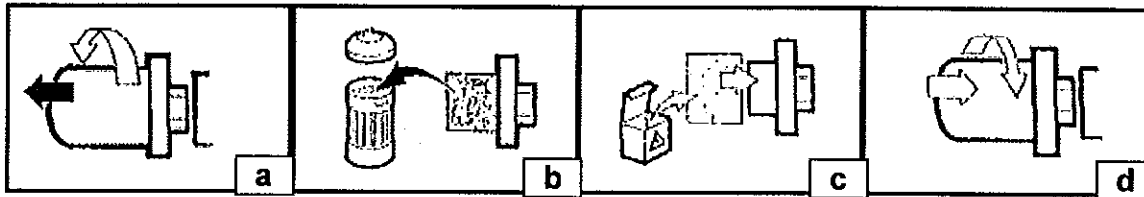
Filter Replacement

(Use Filter Kit P/N 11705321)



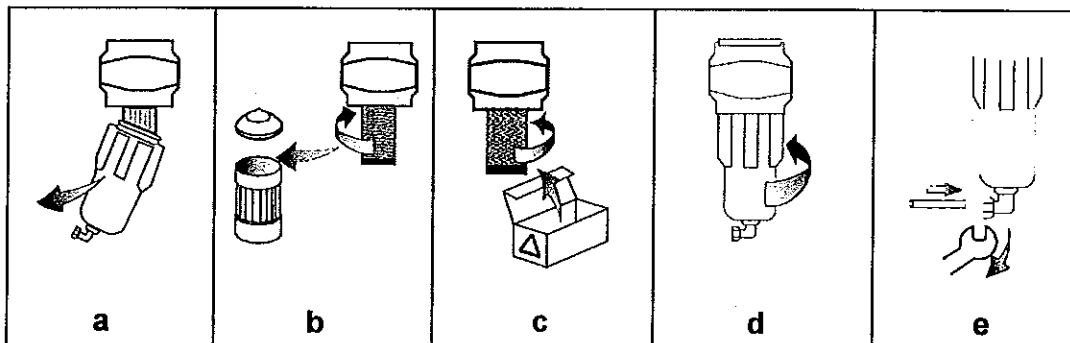
Switch off the electrical power supply before performing any service on the Carbo-Draught Pro unit. Close the CO₂ Inlet and N₂ To Storage isolation valves. Depressurize the system by switching the unit on again for 20 seconds allowing it to exhaust (and depressurize.) Shut the unit off. Note: If the storage system is fully pressurized, the internal tubing will need to be depressurized by slowly turning out the drain tube retaining nut attached to the elbow on the bottom of the coalescing filter bowl.

Replace the Air Intake Filter: (Figure 1)



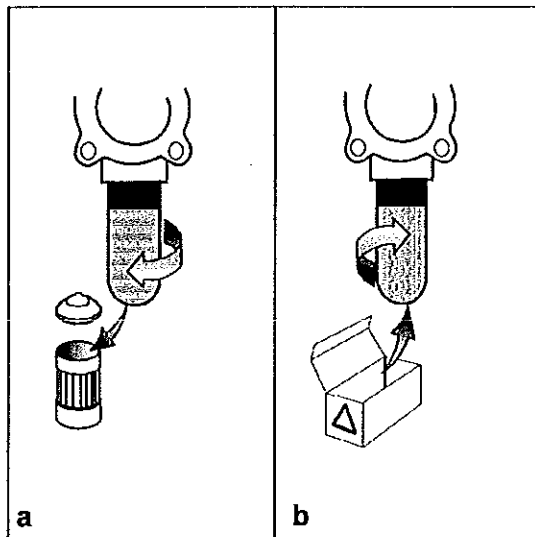
- 1.) Twist the cap of the filter housing in a counter-clockwise direction separating it completely. (figure 1a)
- 2.) Pull the filter element from the housing cap and dispose of the element. (figure 1b)
- 3.) Fit the replacement element by pushing the element, wide end first, into the housing cap. (figure 1c)
- 4.) Replace the housing cap with filter turning it by hand clockwise until it snaps tight. (figure 1d)

Replace the Coalescing Filter: (Figure 2)



- 1.) Ensure the internal pressure is completely relieved by **slowly** unscrewing the tube-retaining nut connected to the elbow at the bottom of the filter housing bowl. Disconnect the drain tube. Do not remove the elbow from the housing.
- 2.) Unscrew the housing bowl (counter-clockwise). (figure 2a)
- 3.) Unscrew the filter (counter-clockwise) and discard it. (figure 2b)
- 4.) Align the replacement filter onto the mounting spindle and screw it in (clockwise) until it is hand-tight. (figure 2c)
- 5.) Replace the housing bowl by screwing it (clockwise) until it is hand-tight. (figure 2d) Do not use a wrench or other tools that may cause damage to the bowl.
- 6.) Refit the drain tube to the filter housing elbow. (figure 2e)

Replace the Silencer Filter Assembly: (Figure 3)

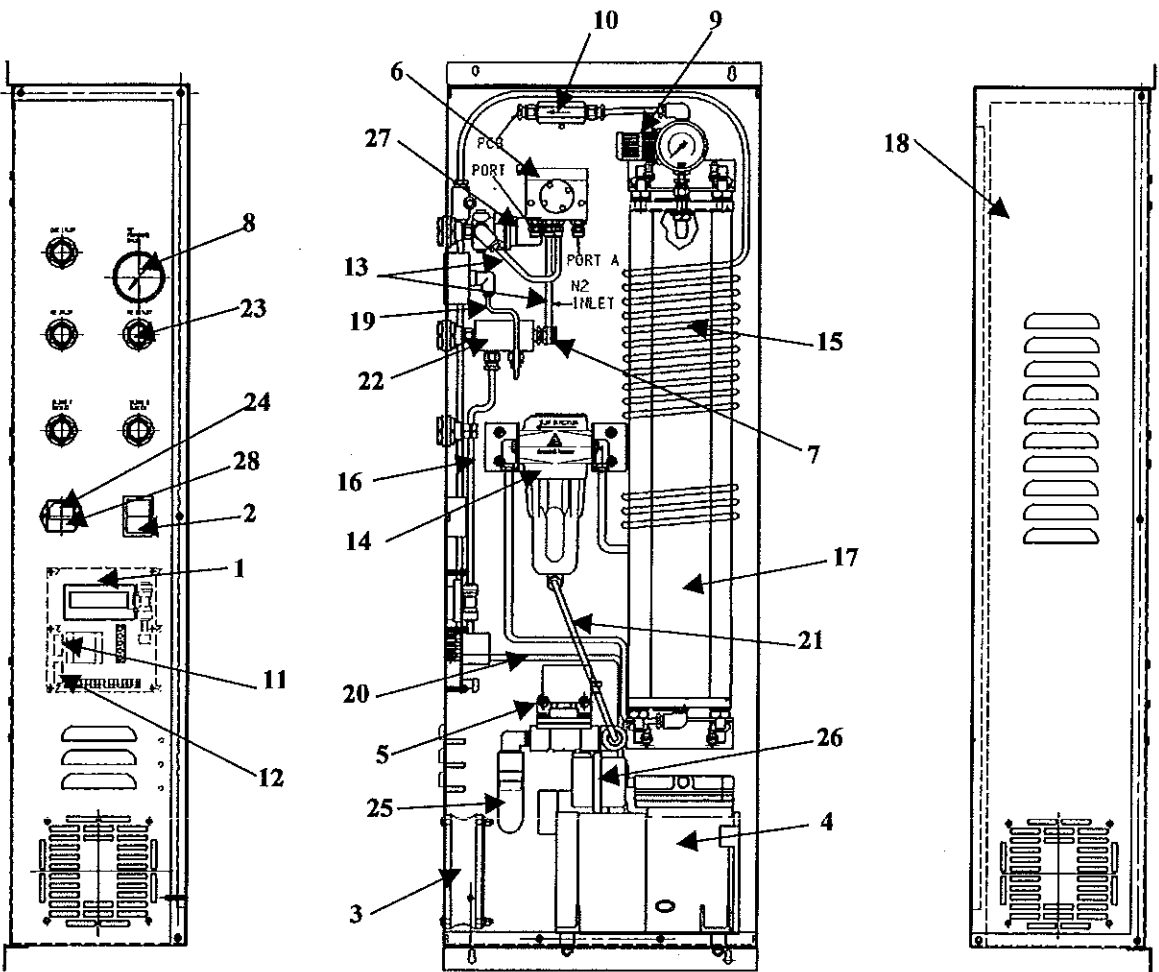


- 1.) Unscrew the silencer (counter-clockwise) from the elbow that is connected to the solenoid valve. (figure 3a) Dispose of the silencer. *Notice that the silencer is comprised of an outer, blue porous plastic "housing" with a sintered brass insert. Both pieces are replaced and therefore do not need to be separated unless for disposal reasons.*
- 2.) Screw the replacement silencer onto the solenoid valve's elbow fitting until it is hand-tight. (figure 3b)

Section 12 - Parts Identification

Carbo-Draught Pro

Part No. 11670384



ITEM	PART NO.	DESCRIPTION	QTY.	FUNCTION
1	11705196	Printed Circuit Board w/mounting hardware.	1	Controls system operation
2	11705209	Main Power Switch	1	Turns unit off and on
3	11705217	Cooling Fan assembly w/mounting hardware	1	Brings fresh air into the system for compressor and cooling
4	11705444	Compressor w/fittings and mounting hardware	1	Delivers ambient air to CMS column
5	11705305	Solenoid Valve Assembly w/mounting hardware	1	Cycles closed and open to pressurize and exhaust CMS gas column
6	11705452	Gas Blender w/fittings	1	Combines N ₂ and CO ₂ gases into proper proportions for dispensing

ITEM	PART NO.	DESCRIPTION	QTY.	FUNCTION
7	11705250	110 psi Relief Valve	1	Protects N ₂ gas circuit from over pressurization
8	11705188	Pressure Gauge	1	Indicates pressure in the N ₂ storage tank
9	11705292	Back Pressure Regulator with gauge	1	Controls release of generated N ₂ into supply circuit
10	11705276	Check Valve	1	Prevents back flow of N ₂ gas during depressurization
11	11705356	100mA Fuse	1	Protects the circuit board
12	11705330	12.5A Fuse	1	Protects internal electrical components
13	11705410	6 mm OD translucent White Poly Tubing	ft	Blender lines
14	11705268	Coalescing Filter Housing Assembly w/fittings	1	Filters compressed inlet air / drains accumulated moisture
15	11705436	Cooling Coil Assy. 6 mm OD Black Nylon	1	Cools compressed air before it enters CMS column
16	11705399	6 mm OD Black Nylon Tubing	ft	N ₂ generation and pressure circuit lines
17	11705233	CMS Column w/mounting hardware	1	Separates N ₂ from compressed ambient air supply
18	11705313	Cabinet Cover (side view)	1	Protects system components
19	11705372	4 mm OD Black Nylon Tubing	ft	N ₂ pressure gauge tubing
20	11705428	6 mm white PTFE Tubing	ft	Compressed air line from compressor to check valve
21	11705401	10 mm Black Nylon Tubing	ft	Connects coalescing filter bowl to exhaust solenoid valve
22		N ₂ Manifold Block	1	Connection for N ₂ pressure gauge and switch tubing, and bulkhead connection
23		Bulkhead Connectors ¼" Female NPT	5	Gas inlet and outlet line and blend outlet line connection
24	11705364	Power Socket	1	Power cord attachment point
25		Exhaust Silencer Filter Element	1	Quiets air expulsion and diffuses moisture from coalescing filter bowl
26		Air Intake Filter Element	1	Filters incoming air to compressor
27	11705225	CO ₂ Regulator	1	Pre-set to regulate incoming CO ₂ pressure
28	11705348	10A Main Power Fuse 250V	2	Protects electrical components of unit. Quantity includes one spare fuse.
	11705321	Filter Replacement Kit	1	Includes Air Intake filter, Coalescing filter and Silencer Filter for scheduled maintenance
	11705170	Carbo-Draught Pro Installation Kit	1	Includes 5 isolation valves, 7 hose barb fittings, 7 clamps, CO ₂ gauge and tee for installation of Carbo-Draft Pro
	11707204	C. D. P. Manual	1	Installation, operation, and service info.


Section 13 - Troubleshooting Guide For Service Agent

Indication	Possible Cause	Corrective Action
Green LED not illuminated.	Poor power cord connection / blown power fuse	Be sure the power cord is securely connected to the power supply outlet and to the unit. Check / replace 10A fuse located in power socket.
	Incorrect input voltage	Check 'main' voltage and rating number plate for voltage spec.
	External fuse blown or circuit breaker tripped	Check fuse; replace if necessary. Reset circuit breaker; check for overload.
	On/Off switch failure	Verify power to unit. Replace switch.
Green LED illuminated but no operation	Unit is in normal rest mode until storage pressure drops to 94 psi.	No corrective action necessary
	Internal fuse blown	Check fuses on printed circuit board. Replace as necessary.
Compressor motor runs excessively; unable to reach maximum N ₂ storage pressure	Internal leak in Carbo-Draught Pro unit	Close "N ₂ outlet to storage" valve, run unit to max pressure, check and correct compressed air and N ₂ pressure circuit / fitting leaks.
	Leak in N ₂ storage or supply line	Leak-check line fittings and connections. Correct leak(s)
	Leak in beer gas circuit or keg coupling	Ensure keg tap couplings are secure. Check gas line and regulator connections.
Low blend gas pressure; beer pouring slow	Power off	Check on/off switch and power circuit
	Low CO ₂ inlet (line) gauge pressure (below 60 psi)	Check CO ₂ supply (tank) pressure and contents. Ensure valves are open.
	Out of CO ₂	Switch to back-up CO ₂ if equipped. Have CO ₂ storage tank refilled.
	Low N ₂ storage pressure (below 60 psi.)	If green and amber LED's are on and compressor is cycling, unit may be in normal recharge mode. Check for leaks in N ₂ lines and beer gas lines.
Excessive beer foaming	Temperature problem	Check cooler and pour temperatures
	Incorrect dispense gas pressure	Check pour rate. Check dispense gas pressure at the keg. Consult with beer system installer or beer distributor.


Section 14 - Service and Parts

Service and Maintenance

- 1.) Service or maintenance on the MVE Carbo-Draught Pro should be performed only by Chart trained and authorized professional service agents who are familiar with mixed gas pressure systems and all pertinent safety and service procedures. Chart recommends the use of Chart approved replacement parts.
- 2.) Before calling your service agent or CO₂ supplier for service or troubleshooting assistance, please have the following information:
 - Serial number of the Carbo-Draught Pro unit
 - Description of the situation
 - Readings from pressure gauges (CO₂ supply, N₂ storage, Gas Blend Supply)
 - Temperature of cooler and beer at faucet if appropriate.
 - Special observations such as excessive beer foaming or continuous compressor operation.
- 3.) Chart recommends that a thorough preventive maintenance check be performed on the Carbo-Draught Pro system annually by a qualified professional service agent.

 Note: Replacement of the compressor air inlet filter, the coalescing filter, and the silencer filter assembly should be performed at least every twelve months or more frequently, depending on environmental conditions. Filter kit: Chart P/N 11705321.

- 4.) The Carbo-Draught Pro has no user serviceable parts. All service work should be performed by an authorized professional service agent.

 Service or modifications performed on the system by unauthorized persons will void the warranty.

Important Telephone Numbers:

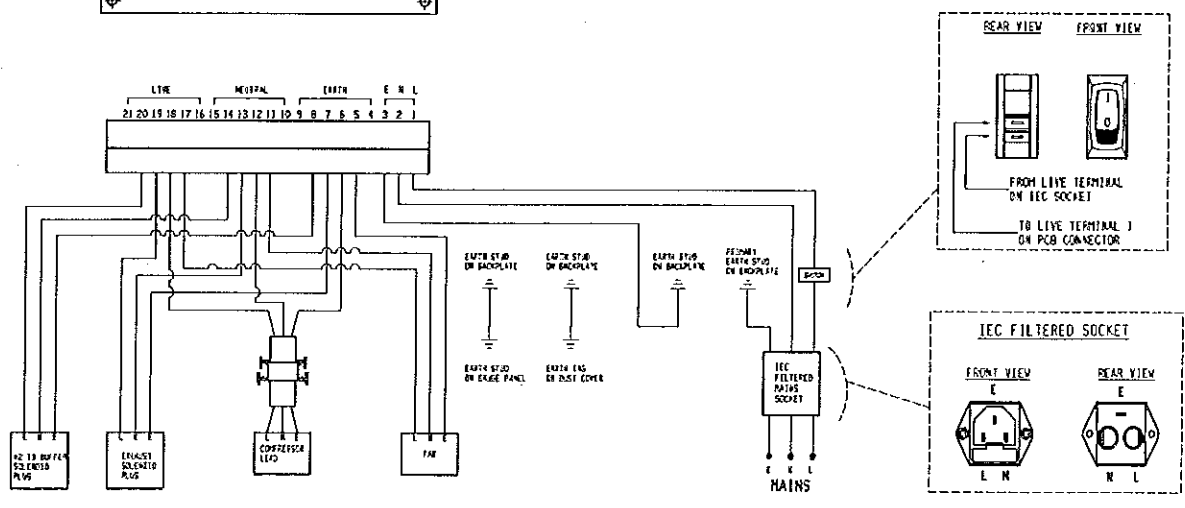
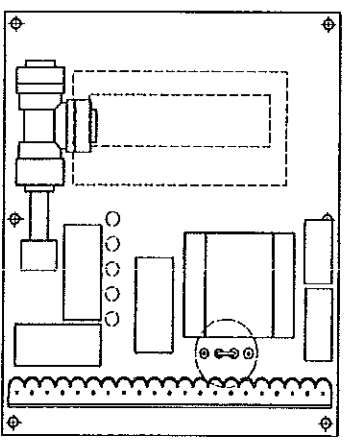
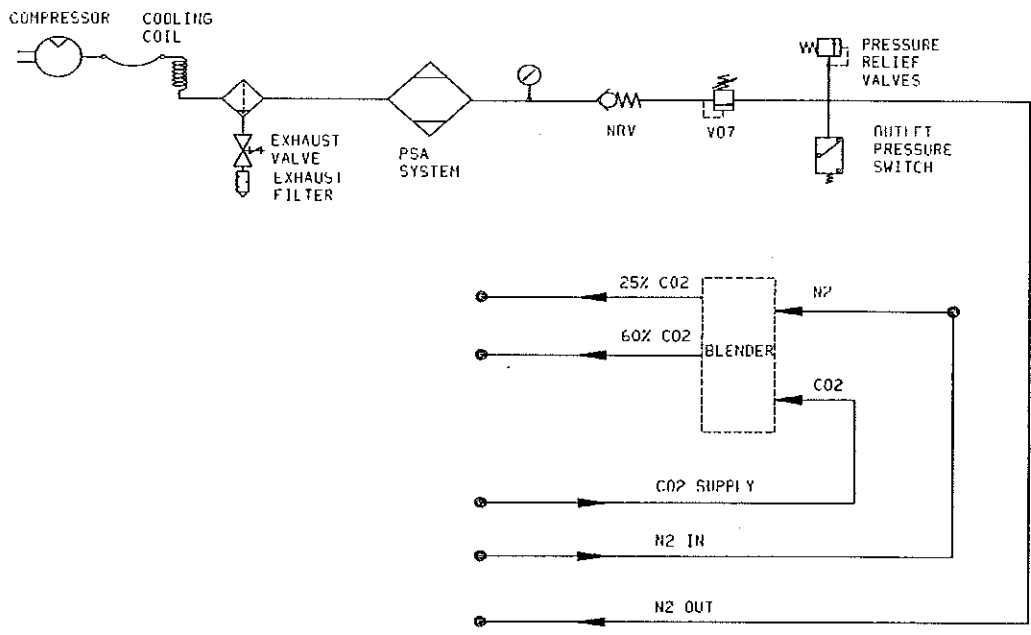
Carbo-Draught System Installer: _____

Carbo-Draught / CO₂ Service Agent: _____

Chart Customer Service: (952) 882-5000 or (800) 247- 4446 [toll free in U.S.]

Chart Technical Service: (800) 253-1769 [toll free in U.S.]

Section 15- Process & Instrumentation Diagram / Electrical Wiring Diagram



Section 16 – Warranty

Warranty Policy

Chart Industries Inc. warrants to the Purchaser the MVE Carbo-Draught Mixed Gas Dispense System shall be free from any defects in workmanship and materials for 24 months from the date of commissioning or 30 months from the date of manufacture, whichever is the earlier. Purchaser agrees that as a pre-condition to any Chart liability hereunder, Purchaser or its appointed agents shall fully inspect all goods immediately upon delivery and shall give Chart written notice of any claim or purported defect within ten (10) days after discovery of such defect. Use of the Carbo-Draught system without the recommended inlet air quality (Section 10 of this manual) or genuine parts will expressly invalidate the warranty.

As a further pre-condition to any Chart liability hereunder, parts replacement and labor must be supplied by a Chart approved service company. Chart may elect to repair or replace such equipment or any defective component or part thereof which proves to be defective, or to refund the purchase price paid by the original Purchaser. Chart shall not be liable for defects caused by the effects of normal wear and tear, erosion, corrosion, fire, explosion, misuse, or unauthorized modification.

Alterations or repair by others than those designated and approved by Chart or operation of such equipment in a manner inconsistent with Chart accepted practices and all operating instructions, unless pre-authorized in writing by Chart, shall void this Warranty.

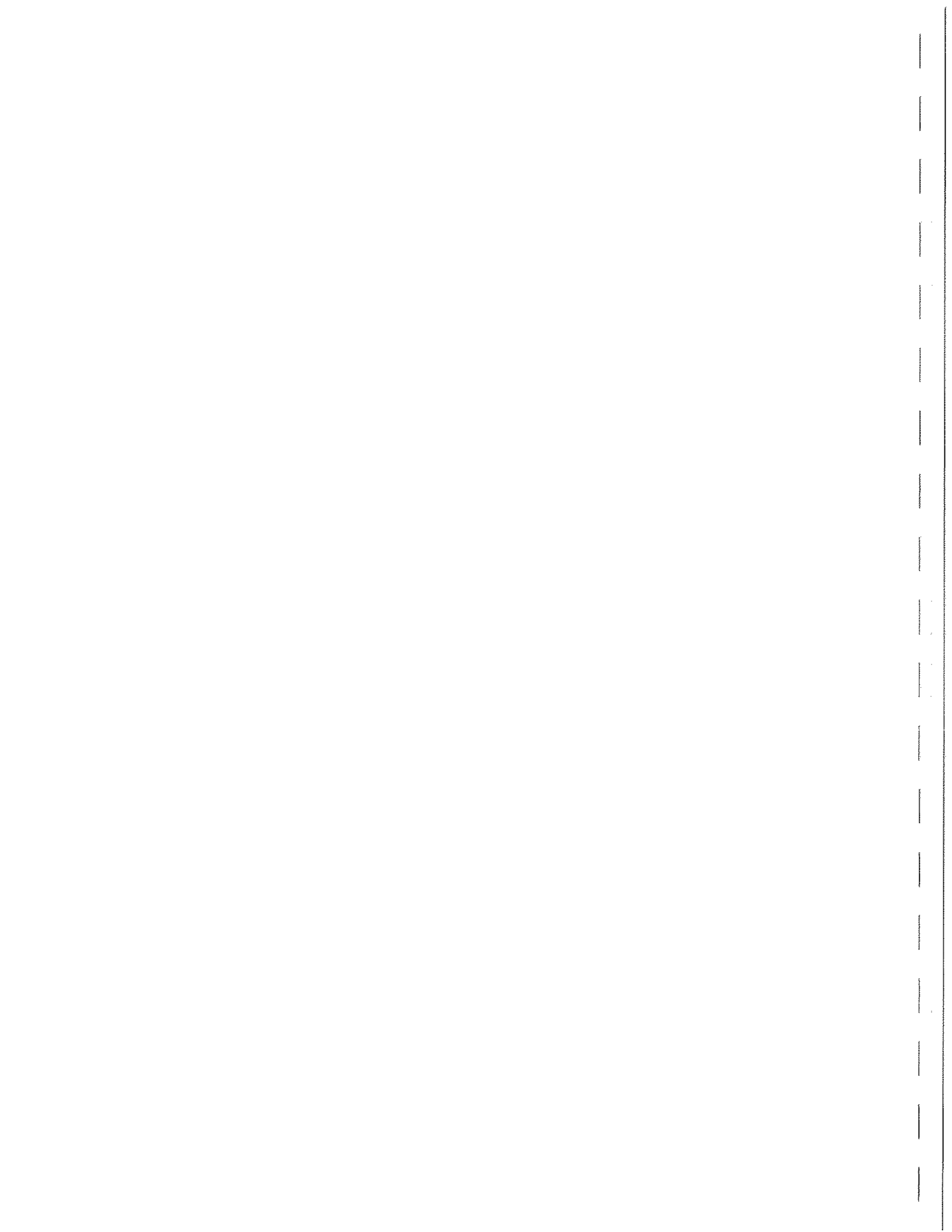
Chart's sole and exclusive liability under this Warranty is to the Purchaser and shall not exceed the lesser of the cost of repair, cost of replacement, or refund of the net purchase price paid by the original Purchaser. Any accessories, parts and equipment supplied by Chart but not manufactured by Chart shall carry whatever warranty the manufacturer has given to Chart providing it is possible for Chart to pass on such warranty to the customer.

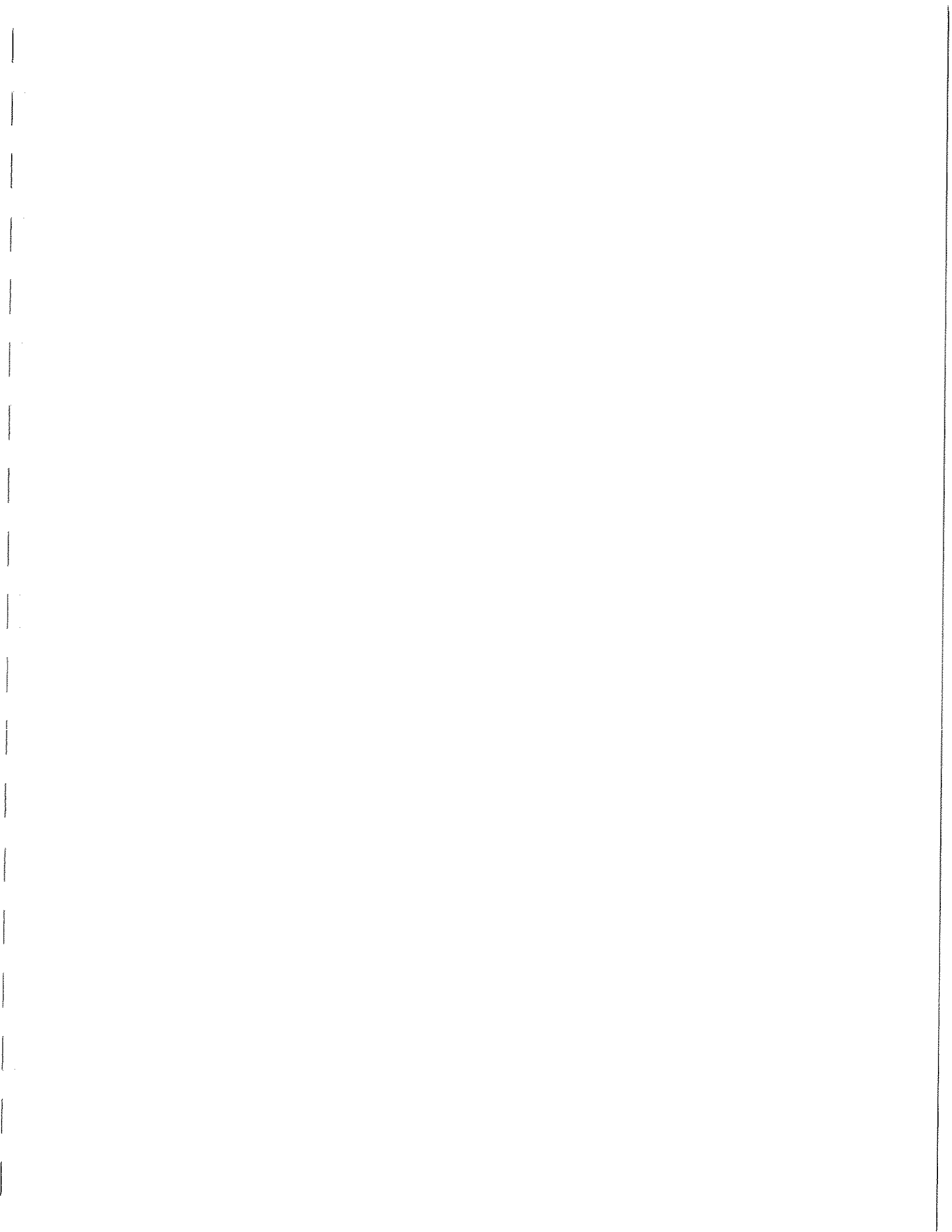
Chart is not liable for any losses (including CO₂), damages, or costs of delays, including incidental or consequential damages. Chart specifically makes no warranties or guarantees, expressed or implied, including the warranties of merchantability or fitness for a particular purpose or use, other than those warranties expressed herein.

WARRANTY CLAIMS PROCEDURE

- 1.) All warranty claims must be previously authorized by Chart Ind. Inc. Telephonic / electronic approval may be obtained by contacting Chart Beverage Systems Technical / Customer Services at:
 - Telephone: 952-882-5000, 800 247-4446 or 800-253 1769
 - Facsimile: 952-882-5185or by writing to:
Chart Ind., Inc.
MVE Beverage System Technical Service
County Road 42 West
Burnsville MN 55306-3803
USA

- 2.) Authorization must be obtained from Chart prior to shipping any equipment to Chart facilities. The model and serial number of the unit must be provided in order to process the return. If approved, a Return Material Authorization (RMA) number will be provided. The RMA number must be prominently indicated on the packing slip and any packaging that accompanies the goods being returned. The customer returning the goods is responsible for all freight, proper packing, and any damage incurred during shipment of the goods back to Chart.







3505 County Road 42 West
Burnsville MN 55306-3803
USA