

Operation Manual

**Glas
tender[®]**

Remote Beer Dispensing System



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WARRANTY STATEMENT

APPLICABLE TO ALL PRODUCTS SOLD WITHIN THE UNITED STATES AND CANADA

LABOR: Glastender, Inc. warrants all products to be free of defects in material and workmanship. In established areas, a start-up is included with glasswasher models GT-24 and GT-30. A 1-year labor warranty applies to the following glasswashers: all GW24 models, GT-18 models purchased at May 1, 2011 or later pricing, and GT-24 and GT-30 models purchased at January 1, 2012 or later pricing. Self-contained refrigeration models, except beer line chillers, include a 1-year labor warranty, for the duration of one year from date of installation or up to 18 months from date of factory shipment, whichever occurs sooner. For warranty labor claims beyond 15 months from the date of factory shipment, proof of date of installation or occupancy must be provided. Authorization for labor must be obtained from Glastender within the warranty period and prior to the service being performed. Labor warranty applies to the United States and Canada only.

PARTS: Within one year from date of installation or 18 months from date of factory shipment, whichever occurs sooner, Glastender, Inc. will replace any part or assembly found defective under normal use and service. Field replacement parts include a warranty of 90 days from date of installation.

FOURYEARADDITIONALCOMPRESSOR WARRANTY: Glastender will warrant to the original user the compressor for all self-contained refrigeration models for an additional four years following the regular one-year warranty period. This plan applies to the compressor only.

A warranty claim form **MUST** accompany all returned defective parts or assemblies. This form **MUST** be completed in full. Failure to do so may result in delay or denial of credit. Any defective part or assembly must be returned to Glastender, Inc., Saginaw, Michigan, with all transportation and delivery charges prepaid. Warranty repairs or replacements will be shipped FOB factory in Saginaw, Michigan. Reimbursement for applicable freight charges covers ground service only.

Glastender provides in-warranty repairs during a service company's regular working days and hours. There is no provision for payment of a premium rate during "overtime" hours. When warranty service is requested during other than normal working hours, the end user will be charged the premium portion of the overtime rate.

The warranty does not cover equipment subjected to accidents, freight damage, alterations from the original design, improper power and/or plumbing hookups, improper chemical use, general misuse, or lack of routine required maintenance as determined by Glastender, Inc. Installation, normal control adjustments, general maintenance, correcting an installation error, or service calls that reveal the unit is functioning normally will not be reimbursed under warranty.

Condenser coils on self-contained refrigeration products must be cleaned regularly. Failure to provide adequate air flow to a refrigeration unit will void the warranty.

Glastender shall not be liable for loss of use, revenue, or profit, or for any other indirect, incidental, special, or consequential damage including, but not limited to, product spoilage or loss.

This warranty is conditioned upon Glastender receiving notice of any defect subject to this warranty within sixty (60) days of its discovery by the end user or dealer. All products are warranted only for the initial place of installation. Removal of a product automatically terminates this warranty.

SECOND YEAR EXTENDED PARTS & LABOR WARRANTY:

Glastender's one-year parts and labor warranty on self-contained refrigeration units, excluding beer line chillers, can be extended to two years with the purchase of a two year parts and labor warranty. Specify part number EWR2 (\$150 net price) when ordering.

EXPORT WARRANTY - One year parts only.

EXCLUSION OF WARRANTIES

EXCEPT AS PROVIDED ABOVE, GLASTENDER MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT.

LIMITATION OF REMEDIES AND DAMAGES

If Buyer makes a valid and timely claim as outlined above, Glastender's liability and Buyer's remedies under this agreement will be limited solely to labor charges authorized and/or replacement or credit, at Glastender's option, with respect to Products returned at Buyer's expense within thirty (30) days after warranty repair. GLASTENDER'S LIABILITY WILL IN NO EVENT BE GREATER IN AMOUNT THAN THE PURCHASE PRICE OF THE RETURNED PRODUCTS. GLASTENDER WILL NOT BE LIABLE UNDER ANY CIRCUMSTANCE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LABOR COSTS EXCEPT AS COVERED UNDER OUR WARRANTY, LOST PROFITS OR THE LOSS OF PERISHABLE PRODUCTS RESULTING FROM THE USE OF OR INABILITY TO USE OUR PRODUCTS OR FROM OUR PRODUCTS' INCORPORATION INTO OR BECOMING A COMPONENT OF ANY OTHER PRODUCT. NEITHER PARTY WILL HAVE ANY NEGLIGENCE OR OTHER TORT LIABILITY TO THE OTHER, OR TO ANY THIRD PARTY, ARISING FROM ANY BREACH OF THIS AGREEMENT.

GOVERNING LAW - JURISDICTION

The terms and conditions of an order are to be governed and construed according to the laws of the State of Michigan, without regard to conflict of laws principles. Buyer hereby consents to the jurisdiction and venue of the courts located in Saginaw County, Michigan.

No representative, distributor, dealer, or any other person is authorized to modify this warranty. This warranty replaces all other written or verbal warranties.

NOTE: Glastender, Inc.'s policy of constant quality improvement means that prices, specifications, and policies are subject to change without notice. Questions regarding this warranty should be directed to Glastender's Customer Service Representative.

11/11/11

IMPORTANT!!

Attention Refrigeration Service Companies

Please review the important warranty information on this page. If you believe a service call should be covered by the factory, please call the factory for authorization between 8AM and 5PM EST, Monday through Friday.

This manual is intended to assist you in the use and maintenance of a Glastender, Inc. remote beer dispensing system. Please review this information before attempting operation.

Long term, trouble-free operation will follow if good housekeeping and maintenance procedures are followed. Thank you for selecting Glastender, Inc. products.

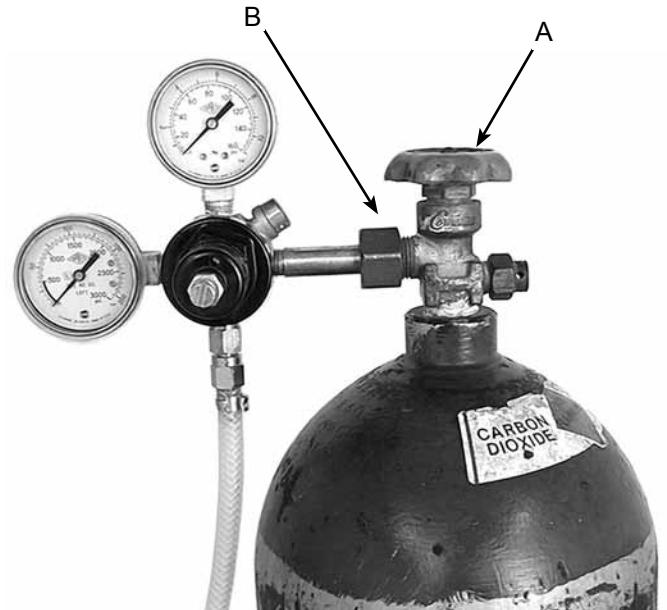
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NOTE: Most of the information within this owners manual is based on standard industry practices. Portions of this manual have been adapted from information published by Anheuser-Busch, Inc.

Follow these instructions when replacing an empty CO₂ cylinder:

1. Always turn off the gas pressure by closing cylinder valve "A".
2. Remove the regulator from the empty cylinder at "B".
3. Remove the dust cap from the new cylinder at "B" and clear dust from the new cylinder outlet by quickly opening and closing valve "A". NOTE: This is the only time a CO₂ cylinder should be opened without a regulator attached.
4. With the new cylinder valve "A" closed, attach the regulator to the cylinder at "B". A fiber or plastic washer is required to couple the regulator and cylinder, unless the regulator includes a built-in O-ring.
5. Open valve "A" all the way and ensure that the regulator is sealed properly.



The pressure setting on the gauge is determined by the original beer system installer. The regulator should remain at this setting, so no adjustment to the regulator is required.

PROPER CO₂ HANDLING

Your Glastender remote beer dispensing system has primary and secondary CO₂ regulators with built-in pressure relief valves to protect against excessive pressure build-up.

WARNING: CO₂ cylinders contain high-pressure compressed gas which can be hazardous if not handled properly. Please read and understand the following procedures before handling any CO₂ cylinders.

1. ALWAYS connect the CO₂ cylinder to a regulator.
2. NEVER connect the CO₂ cylinder directly to a product container or keg.
3. ALWAYS follow the proper procedures outlined above when replacing an empty CO₂ cylinder.
4. ALWAYS keep a CO₂ cylinder away from heat. CO₂ cylinders should be stored in a cool place, preferably 70°F.
5. ALWAYS store CO₂ cylinders in an upright position and secure them with a chain or safety strap. This includes CO₂ cylinders that are empty or not in use.
6. ALWAYS keep CO₂ cylinders in a well-ventilated area and leave the area immediately if a leakage has occurred.
7. NEVER drop or throw a CO₂ cylinder.
8. ALWAYS check the D.O.T. test date on the cylinder neck before using. If over five (5) years, do not use, return the cylinder to the gas supplier.

Rotate Stock

Draft beer is best served fresh. The kegs must be properly rotated, or the beer will lose its original taste and aroma. *Always use the oldest beer first. Do not stock new deliveries in front or on top of kegs already in the cooler.*

Temperature

Draft beer must be kept cold at all times. The optimum storing temperature is between 34° and 38°F. Temperatures above 45°F may cause the beer to turn sour and cloudy. A beer keg takes a long time to cool down, so they should never be stored outside of a cooler for any length of time. For example, a beer keg that is allowed to heat up to 44°F will take approximately 18 hours to cool down in a 36°F cooler. *Always place keg beer in a cooler immediately upon delivery.*

It is best to store beer kegs in a cooler that is used exclusively for draft beer and not foods. Frequent opening of the cooler door can raise the beer temperature. Also, unpleasant food odors can affect the taste of the beer by penetrating the beer lines over time.

Improper temperature is one of the most common causes of draft beer drawing problems. Draft beer is more likely to foam when the beer temperature is above 38°F. Temperatures lower than 28°F can cause the beer to freeze, which causes the beer to be cloudy and have an off taste. Once again, the optimum storing temperature is between 34° and 38°F.

Pressure

The pressure levels for your Glastender beer system have been pre-set by the factory authorized installer, so no adjustments to the regulators levels are required. The design of your remote beer system will maintain the proper pressure level to prevent over or under-carbonated beer. The original beer system installer should be contacted before making any regulator adjustments.

It is important to keep a constant and uniform level of pressure on the beer. Never turn off the CO₂ gas at night. You cannot save gas this way.

Is your regulator accurate? A sluggish needle, which falls downward when beer is drawn, will result in flat beer toward the end of the barrel. A creeping regulator, which creeps upward during idle periods, will result in wild or over-carbonated beer. If you suspect that your regulator is operating improperly, please contact the original installer or the factory.

Counter Pressure

Since CO₂ is chemically the same as the natural carbonation in draft beer, pressurized CO₂ tanks are used to provide the pressure to a keg for dispensing. By maintaining the natural head pressure on the keg, the beer is prevented from going flat or becoming over carbonated. Most remote beer systems require the use of counter pressure that is higher than the natural carbonation level of draft beer (a beer barrel at 38°F has an internal pressure of 12 to 16 P.S.I.). However, if the counter pressure is provided by pure CO₂, the beer will over carbonate and foam, so a counter pressure system other than straight CO₂ is required.

The counter pressure method may consist of blended nitrogen and CO₂ or mechanical beer pumps. Blended nitrogen and CO₂ comes pre-blended in a tank or is blended on site using a blender and a tank of pure nitrogen and a tank of pure CO₂. Blended nitrogen and CO₂ provides counter pressure by mixing nitrogen and CO₂ to lower the CO₂ content in the overall pressure mixture, allowing system pressures placed on the kegs to be above 16 pounds without over carbonating the beer.

Mechanical beer pumps are another type of counter pressure method. Pressurized CO₂ is used to actuate the mechanical diaphragm inside the beer pump; however the CO₂ does not come in to contact with the beer, thus eliminating the risk of over carbonation.

System Operation

A properly balanced system should provide at least some head (foam) on a glass of beer. A normal head can be up to one inch thick. While most bartenders tend to pour off the foam until there is virtually no head, at least some foam should be expected. Proper pouring techniques will help minimize excess foaming. It is also important to remember that frosty mugs cause the beer to foam more than normal, so this should be considered when system performance is being evaluated.

Once a beer system is operating, there are really no adjustments that need to be made, unless a new brand of beer is introduced. In fact, adjusting the pressure regulators haphazardly creates more problems than it solves. Fluctuations in walk-in cooler or keg temperature are often the cause of temporary foaming problems. In these instances, adjusting the regulators will not help and will likely create problems later on when the temperature problem goes away. The best way to ensure proper system operation is to follow the regular maintenance schedule outlined in the operation manual.

Placing the Keg Tap on the Barrel

Glastender normally provides a lever-type keg tap for each keg in the beer system. Please refer to the following instructions when placing a keg tap on the barrel.



Position the tap head in the barrel neck.

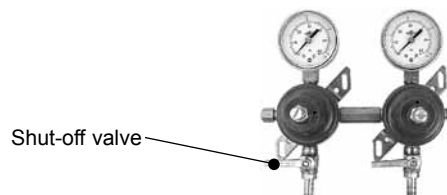


Turn the handle clockwise a $\frac{1}{4}$ turn.



Pull the handle out and push it down to the locked position, which activates the pressure and beer lines. You are now ready to draw beer.

NOTE: When removing a keg tap, first turn off the secondary regulator to the tap, located by following the red air line from the keg tap to the secondary regulator shut-off valve. Pictured to the right is a sample two product secondary regulator with shut-off valves in the closed or off position.



Shut-off valve

A beer-clean glass is one that is free of film, odors, and bacteria. A glass that is not beer clean can lead to “flat” beer (head rapidly disappears, releasing carbonation), a “false” head (overly large bubbles that quickly disappear), or an “off” taste (caused by remnant odors).

To achieve a beer-clean glass, each glass must be properly washed, rinsed, and sanitized. Your chemical supplier can recommend cleaners and sanitizers that are specifically designed for cleaning beer glasses. The following procedure is recommended [NOTE: This is a recommended procedure only and it may be preempted by local health code requirements.]:

1. Empty used glassware into an open drain and rinse with clean water to remove any excess beer or foam.
2. Wash the glass in a sink containing warm water and the appropriate odorless, low-sudsing detergent as recommended by your chemical supplier. Using a nylon brush or mechanical brush washer, be sure to thoroughly clean the inside and outside of the glass, including the bottom.
3. Rinse the glasses in a sink containing fresh, clean water that flows continuously. Submerging the glass with the *heel end in first* and removing it with the *heel end out first* will help ensure proper rinsing.
4. Then rinse the glass in a tank containing warm water and a sanitizer as recommended by your chemical supplier. Use the same *heel end in first, heel end out first* method described in step 3.
5. Let the glasses air dry upside down on a stainless steel drainboard surface that allows maximum air circulation.

Once the glass is beer clean, store it in a proper fashion that will keep it beer clean. Never dry glasses with a towel and do not store them on a towel or smooth surface that will slow the drying process.

How to test for a beer-clean glass?

Once you have followed your cleaning procedure, you may test your glassware to see if it is beer clean using any one of the following methods:

1. **Sheeting Test:** Immerse a glass in clean water, heel first and then empty the glass. The water should shed off the glass evenly without forming water droplets. A beer-clean glass will air dry crystal clear.
2. **Salt Test:** Immerse a glass in clean water, heel first and then empty the glass. Sprinkle salt on the inside of the glass. The salt should cling evenly to the entire inside wall of the glass. The salt will not adhere to areas that still have an invisible greasy film.
3. **Lacing Test:** Fill a glass with beer. Foam should adhere to the inside of the glass in a series of rings after each sip of beer, forming a lacing pattern. If the glass is not beer clean, foam will adhere to the inside of a glass in a random pattern or may not adhere at all.

Regular maintenance of your Glastender remote beer dispensing system will help keep it running properly and ensure your maximum profit. It may be best for you to contract with an outside agency that will provide beer system maintenance at regular intervals. The following list shows the time intervals and suggested maintenance.

Every Day

- Flush all dispenser drains by pouring hot water down them. Only use clean, hot water.

Every Two Weeks

- Clean beer lines. When yeast and barley separate from the beer recipe, they form a bio-film on the inner wall of the beverage tubing. This bio-film buildup provides the media on which bacteria may feed. The by-product of the bacteria will taint the taste of the beer. Your local health department may have policies that dictate how often your beer lines must be cleaned. Obviously, there are cost and practicality issues to consider, but you should not go more than 30 days without cleaning your beer lines.

Every Month

- Check coolant level in line chiller glycol bath. If coolant level is low, add a mixture of glycol and water to bring the level up to the proper height. Glastender's glycol may be mixed two parts water to one part glycol and still withstand temperatures as low as 0°F without freezing. NOTE: Only use Dow-Therm or equivalent brand glycol. Do NOT use R.V. grade glycol or antifreeze.

Every 3 Months

- Inspect all primary and secondary pressure regulator settings and inspect the system for leaks.
- Inspect floor chases and seal any open chase ends. If water enters a floor chase it should be removed as quickly and thoroughly as possible. Any water buildup inside a chase will affect the temperature and taste of the beer, and produce poor drawing results.
- Inspect beverage conduits for damage. Re-insulate and seal any uninsulated areas.
- Clean the line chiller air-cooled condenser using a vacuum cleaner.

Every 6 Months

- Check glycol concentration using an antifreeze tester.

Original System Installer

Company: _____

Address: _____

City, State, Zip: _____

Phone Number: _____

Fax Number: _____

Contact: _____



FIGURE 1



FIGURE 2



FIGURE 3

TURN OFF THE PRESSURE REGULATOR

To clean the beer lines in a Glastender beer pump style beer system, start by turning off the pressure to the keg for the beer line you want to clean (figure 1). Follow the red air line to the keg to verify that you are shutting off the proper regulator.

DISCONNECT THE BEER LINE FROM THE TAP

Remove the keg tap from the keg. Disconnect the clear beer line from the keg tap by loosening the appropriate beer nut (figure 2). Be careful not to lose the rubber washer inside the nut.

CLEAN THE KEG TAP

The keg tap should be cleaned by soaking it in a mixture of beer line cleaning detergent and hot water. Use a brush if required. Remember to rinse with clear water when finished.

CLEAN THE BEER LINE

Place the beer line into a bucket containing a mixture of beer line cleaning detergent and hot water (figure 3). Pull the corresponding faucet handle on the beer tower to get the detergent solution to flow through the line. Once the cleaning solution is coming out of the beer faucet, shut the faucet and let the solution soak for 10 minutes. After the 10 minute soaking period is finished, open the faucet and let the remainder of the cleaning solution flow through the line.

The more solution you use the better the result (i.e., using a 10 gallon bucket is better than a 5 gallon bucket). You may want to attach a piece of hose to the faucet to capture the cleaning solution in a bucket to reduce splashing at the beer tower.

RINSE THE BEER LINE AND REASSEMBLE

After the cleaning solution has flowed through the line, rinse the line out by repeating the process using a different bucket of clear water to flush the line. Reassemble the beer line and repeat the cleaning process for the other beer lines.

The glycol in your Glastender line chiller is very important to the proper operation of your remote beer system. Always follow the maintenance procedures outlined on page 5 of this manual. Failure to properly maintain the glycol will lead to trouble. If the glycol is too weak, ice will build up inside the glycol bath* allowing the temperature to rise. If the glycol level is too low, the temperature will also rise. If you are having trouble, start by checking the glycol concentration and level in your line chiller. The following trouble shooting guide will help for other common situations. If problems persist after you have eliminated all simple solutions, contact the original system installer or your local service rep.

TROUBLE	PROBABLE CAUSE	SOLUTION
Dispensed beer temperature is too warm (may result in excessive foaming)	A. Line chiller glycol tank is too warm.	A. Glycol bath should be maintained between 28°F and 32°F. If it is warmer, adjust the thermostat to a colder setting.
	B. Walk-in cooler temperature is too warm.	B. The walk-in cooler temperature should be maintained between 35°F and 40°F. Place a thermometer in a glass of water inside the walk-in cooler for two hours to check the temperature inside the walk-in.
	C. Line chiller is not running.	C. Check that the line chiller power cord is plugged in or a circuit breaker is not blown.
No CO₂ pressure on beer system.	A. Empty CO ₂ cylinder.	A. Switch to new CO ₂ tank supply.
	B. CO ₂ shutoff valve is closed at CO ₂ cylinder.	B. Open CO ₂ shutoff valve at CO ₂ cylinder.
	C. CO ₂ shutoff valves in lines leading to keg taps are closed.	C. Open CO ₂ shutoff valves in lines leading to the keg taps.
	D. CO ₂ regulators have been changed from their original settings.	D. The original beer system installer will set the regulators at the proper pressure to run your beer system. Contact the original installer if the original settings were not recorded.
	E. Leak in the CO ₂ system.	E. Find the leak and repair it.
Beer is sour or has an off taste.	A. Beer system needs to be cleaned and sanitized.	A. Clean and sanitize the beer system or contact the local line cleaning contractor.
	B. Beer is spoiled due to inadequate walk-in cooler temperature.	B. Correct the walk-in cooler temperature problem, check line chiller operation, then clean and sanitize the beer system.
	C. Different beers have been mixed in the same beer line.	C. Clean and sanitize the beer system before switching to a new beer supply.

* CAUTION: If there is a build-up of ice on the evaporator coils in the glycol bath of your line chiller, it must be thawed. To thaw the ice, unplug the line chiller and add hot water to the bath. Once thawed, the coolant solution should be drained and replaced with the proper mixture of glycol and water. NEVER USE A SHARP INSTRUMENT TO REMOVE ICE FROM THE EVAPORATOR COILS. It will puncture the evaporator lines and destroy the line chiller.

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