INSTALLATION, OPERATING AND SERVICE MANUAL FOR LANCASTER ULTRAVIOLET DISINFECTION SYSTEM

LANCASTER® WATER TREATMENT

PLEASE CAREFULLY READ INSTRUCTIONS BEFORE INSTALLING SYSTEM

SAFETY PRECAUTIONS: WARNING - to guard against injury, basic safety precautions should be observed, including the following:

1. **READ AND FOLLOW ALL SAFETY INSTRUCTIONS.**
2. **CAUTION:** Ultraviolet light (UV-C) IS HARMFUL TO EYES AND SKIN. Operate UV lamps only inside the disinfection chamber.
3. **EYE PROTECTION MUST BE WORN!** Never look at an operating UV light with the naked eye. The light will burn and irritate unprotected eyes and skin.
4. **DANGER-** To avoid possible electric shock, special care should be taken since water is present near electrical equipment. Unless a situation is encountered that is explicitly addressed by the provided maintenance section in this manual, do not attempt repairs yourself. We strongly recommend that a qualified individual who fully understands the disinfection system perform service and/or repairs. Contact Lancaster Water Treatment for serviceman information.
5. Carefully examine the disinfection system after installation. It should not be plugged in if there is water on parts not intended to be wet.
6. Do not operate the disinfection system if it has a damaged cord or plug, if it is malfunctioning or if it is dropped or damaged in any manner.
7. Always shut off water flow and unplug the disinfection system before performing cleaning or maintenance activities. Never yank the cord to remove from an outlet; grasp the wall plug and pull to disconnect.
8. Do not use this disinfection system for other than intended use (potable water applications). The use of attachments not approved, recommended or sold by the manufacturer/ distributor may cause an unsafe condition.
9. Installation of this UV system must be in accordance to state and local codes and regulations for plumbing and electrical.
10. Intended for indoor use only. Do not install this disinfection system where it will be exposed to the weather or to temperatures below freezing. Do not store this disinfection system where it will be exposed to temperatures below freezing unless all water has been drained from it and the water supply has been disconnected.
11. Read and observe all the important notices and warnings on the disinfection system.
12. If an extension cord is necessary, a cord with a proper rating should be used. A cord rated for less Amperes or Watts than the disinfection system rating may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
13. **CAUTION:** During extended periods of no water flow, the water in the disinfection chamber will become heated. Run cold water tap after these conditions to avoid potential hot water exposure
14. **SAVE THESE INSTRUCTIONS!**

PRE-INSTALLATION REQUIRMENTS: Water quality is extremely important for the optimum performance of your UV system. The following levels are recommended for installations:

COLOR	none
TOTAL IRON	< 0.3 ppm (0.3mg/l)
MANGANESE	< 0.05 ppm (0.05 mg/l)
HARDNESS	< 7 gpg (120mg/l)
TURBIDITY	< 1 NTU

NOTE: Where total hardness is less than 7 gpg, the UV unit should operate efficiently provided the quartz sleeve is cleaned periodically. If total hardness is over 7 gpg, the water should be softened.

INSTALLATION PROCEDURE:

- CAUTION, Control box must be connected to a grounded receptacle. A ground fault protected circuit (GFCI) is Recommended.
- The disinfection chamber is designed to be mounted horizontally or vertically at the point-of –use or point-of-entry depending on the specific flow rate of the unit. The ideal installation is vertical with the lamp connector on top. You must leave enough space to allow for the removal off the UV lamp and/or quartz sleeve. (Leave space equal to the length of the disinfection system)
- The control box should be mounted either above or beside the disinfection chamber. This will prevent moisture caused by condensation from entering the controller enclosure, causing a potential for ballast failure.
- The complete water system, including any pressure or hot water tanks, must be sterilized before start up by flushing with chlorine (household bleach) to destroy any residual contamination.
- The disinfection system is intended for indoor use only; do not install disinfection system where it may be exposed to the weather.
- The system must be protected from freezing. Freezing damage will void the warranty.
- Place the system where a potential leak will not cause water damage. **LANCASTER WATER TREATMENT** is not responsible for water damage.
- If the line pressure is greater than 100 psi, install a suitable pressure-reducing valve in the water inlet pipe to the disinfection unit.
- Install the disinfection system on cold water line only.
- If treating the entire house, install the disinfection system before any branch lines.
- A 5 micron sediment filter must precede the disinfection system. Ideally, the disinfection system should be the last treatment the water receives before it reaches the faucet.

1. For shipping purposes, the UV lamp is shipped in a separate cardboard tube. Carefully remove the UV lamp from the shipping tube being careful not to touch the glass portion with your fingers. Insert the UV lamp into the quartz sleeve and chamber making sure the connection end is inserted last. Mount the disinfection chamber to the wall with the supplied mounting brackets.

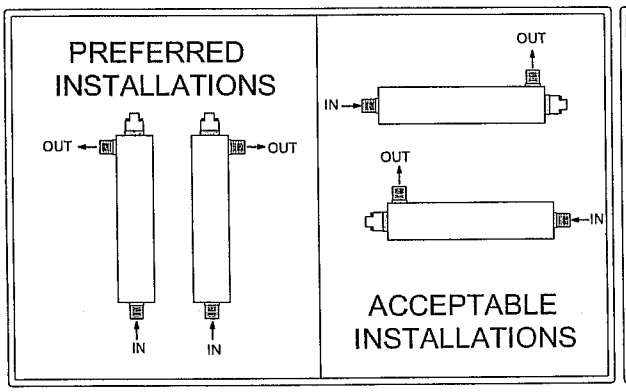
2. If the chamber is to be hard plumbed, make sure you leave enough clearance in front of the lamp connector to facilitate lamp service (a length equal to the length of the unit should suffice).

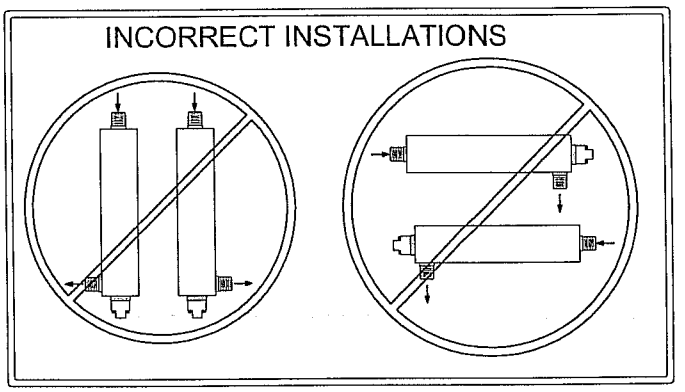
3. Various connection methods can be used to connect the water source to the disinfection chamber . However, union type connectors are recommended. The use of a flow restrictor device is recommended when installing your disinfection system in order that the manufacturers recommended flow rate not be exceeded. These flow restrictors are available from your dealer. In addition, the use of a by-pass assembly is recommended for emergency use of untreated water when your unit is being serviced. PLEASE NOTE: When the UV unit is returned to service after being on by-pass, the complete water system must be sterilized once again with chlorine (household bleach) to destroy any contamination that may have entered the distribution system while on by-pass. DO NOT SOLDER CONNECTIONS WHILE ATTACHED TO THE CHAMBER AS THIS COULD DAMAGE THE O-RING SEALS.

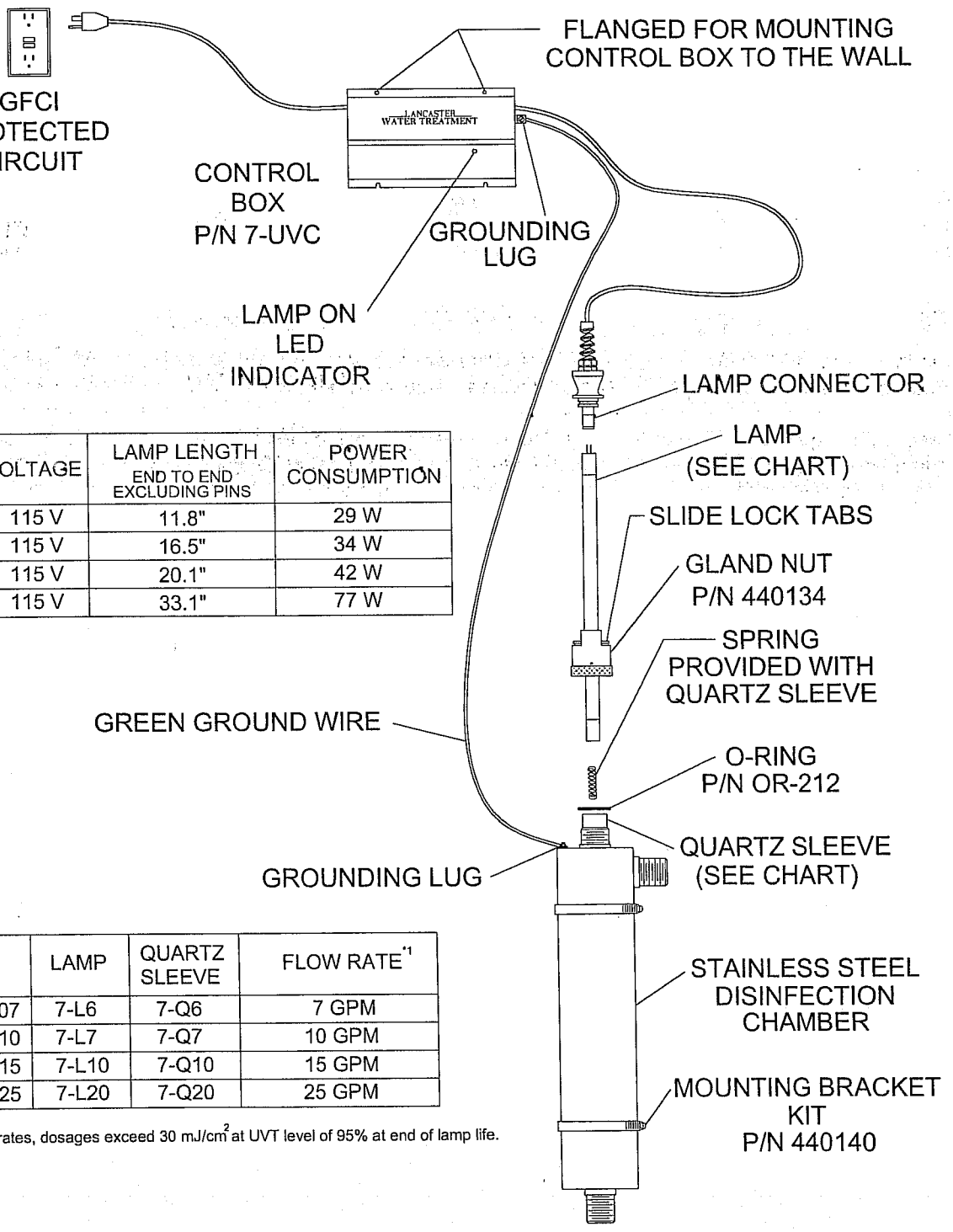
4. Mount the control box to the wall near the chamber, either above or beside the chamber to prevent condensation from dripping on the box. Prior to connecting the power source, check all connections to ensure that they are indeed secure, turn on water supply and check for any leaks. If satisfied that there are no leaks, proceed with the following steps.

5. A grounding lug is provided on the stainless steel disinfection chamber. Attach the supplied 3 foot long, # 14 AWG green wire to this grounding lug. Attach other end of ground wire to provided ground lug on control box.

6. The control box provided with your disinfection system must be located within (5) feet of an electrical outlet. DO NOT USE AN OUTLET THAT CAN BE ACCIDENTALLY SWITCHED OFF. Attach the lamp connector to the UV lamp and slide into the aluminum gland nut and lock in place. Plug the control box into the outlet and ensure the lamp on LED is illuminated. Note: As the system requires time to reach its full operating capacity, please allow the lamp to operate 3-5 minutes prior to using the water from the unit. In addition, to clear any air or debris from the system, open the faucet and allow water to run through the disinfection system for 2-3 minutes.



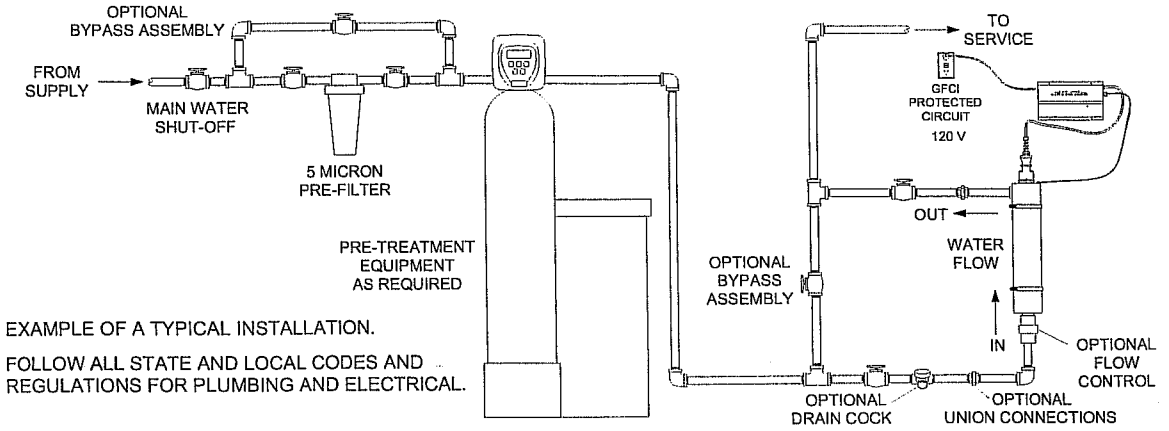




MODEL	VOLTAGE	LAMP LENGTH END TO END EXCLUDING PINS	POWER CONSUMPTION
7-LWT-UV007	115 V	11.8"	29 W
7-LWT-UV010	115 V	16.5"	34 W
7-LWT-UV015	115 V	20.1"	42 W
7-LWT-UV025	115 V	33.1"	77 W

MODEL	LAMP	QUARTZ SLEEVE	FLOW RATE[*1]
7-LWT-UV007	7-L6	7-Q6	7 GPM
7-LWT-UV010	7-L7	7-Q7	10 GPM
7-LWT-UV015	7-L10	7-Q10	15 GPM
7-LWT-UV025	7-L20	7-Q20	25 GPM

[*1] At specified flow rates, dosages exceed 30 mJ/cm^2 at UVT level of 95% at end of lamp life.



OPERATING AND MAINTENANCE INSTRUCTIONS NOTE: PRIOR TO PERFORMING ANY WORK ON THE DISINFECTION SYSTEM, ALWAYS DISCONNECT THE POWER SUPPLY FIRST.

1. Regularly inspect your disinfection system to ensure that the UV lamp is operating.

2. Replace the UV lamp with a new lamp after one year of continuous use to ensure a high bacteria and virus kill rate. It should be noted that the UV lamp should be ON continuously as repeatedly turning the lamp on and off will severely shorten the lamp life and allow bacteria to pass through without being affected by the UV.

3. To replace the UV lamp, first disconnect power. Disconnect the lamp connector by carefully unlocking it from the gland nut. Disconnect lamp connector from lamp and carefully remove the UV lamp. Connect the new lamp being careful not to touch the new UV lamp "glass" with your fingers as oils may impair UV transmission. If contact does occur, clean lamp with alcohol and reconnect lamp connector. Carefully install new lamp into stainless steel disinfection chamber. Press lamp connector into aluminum gland nut and lock into place. Plug control box into outlet. Verify LED is illuminated.

4. If the water contains any hardness minerals (calcium or magnesium), iron or manganese, the quartz sleeve will require periodic cleaning. To remove the quartz sleeve, first remove the UV lamp as outlined in step 3, then follow these steps.

   A) Shut off water supply and drain all lines.

   B) Remove the lowest connection on the disinfection chamber and drain the UV chamber (use a small bucket under the unit to prevent a spill)

   C) Remove aluminum gland nut from chamber. (Do not allow quartz sleeve to fall).

   D) Carefully remove o-ring from the quartz sleeve. As the o-ring may tend to adhere to the quartz sleeve, it is recommended to replace the o-rings annually.

   E) Clean the quartz sleeve with a cloth soaked in vinegar or some other mild acid and then rinse.

   F) Reassemble the quartz sleeve in the UV chamber.

   G) Wet the o- ring and slide onto the end of the quartz sleeve and reassemble the gland nut. (Hand tight is sufficient)

   H) Re-tighten all connections, turn on water and check for leaks.

   I) Re- install the UV lamp and connector as per prior instructions.

   J) Plug in control box and verify the LAMP ON LED is illuminated and ballast power-up sequence operates.

NOTE: If the system is put on a temporary by-pass or if it becomes contaminated after the disinfection system, it will be necessary to shock the system with household bleach for a full 20 minutes before resuming the use of water .

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