Owner's Manual

TROJANUVMAX[™] Pro Series

Ultraviolet Water Purification System

Congratulations. By purchasing this system, you have taken the first step in ensuring safe drinking water. Designed using the most advanced UV technology available today, your UV system is designed to provide you with years of trouble free operation with minimal maintenance required.

Date of installation:

Installed by:

Installer phone#:

KEY INFORMATION YOU SHOULD KNOW:

- A 5-micron (nominal) sediment filter must be installed upstream of (before) any UV system
- Clean the quartz sleeve regularly for optimum performance



System tested and certified by NSF International against NSF/ANSI Standard 55 for disinfection performance, Class A.



SAFETY INSTRUCTIONS

GROUNDING

This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electrical shock. This system is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER – Improper connection of the equipment-grounding conductor can result in a risk of electrocution. Check with a qualified electrician or service personnel if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with this system – if it will not fit the outlet, have a proper outlet installed by a qualified electrician. Do not use any type of adapter with this system.

GROUND FAULT CIRCUIT INTERRUPTER PROTECTION

To comply with the National Electrical Code (NFPA 70) and to provide additional protection from the risk of electric shock, this system should only be connected to a properly grounded, grounding-type power supply receptacle that is protected by a Ground Fault Circuit Interrupter (GFCI). Inspect operation of GFCI as per manufacturers suggested maintenance schedule.

EXTENSION CORDS

If an extension cord is necessary, use only 3-wire extension cords that have 3-prong grounding-type plugs and 3-pole cord connectors that accept the plug from this system. Use only extension cords that are intended for outdoor use. Use only extension cords having an electrical rating not less than the rating of the system. A cord rated for less amperes or watts than this system rating may overheat. Exercise caution when arranging the cord so that it will not be tripped over or pulled. Do not use damaged extension cords. Examine extension cord before using and replace if damaged. Do not abuse extension cord. Keep extension cord away from heat and sharp edges. Always disconnect the extension cord from the receptacle before disconnecting this system from the extension cord. Never yank cord to pull plug from outlet. Always grasp the plug and pull to disconnect.

WARNING -

To guard against injury, basic safety precautions should be observed, including the following:

- 1. READ AND FOLLOW ALL SAFETY INSTRUCTIONS.
- DANGER To avoid possible electric shock, special care should be taken since water is employed in the use of this system. Unless a
 situation is encountered that is explicitly addressed by the provided maintenance and troubleshooting sections, do not attempt repairs
 yourself; refer to an authorized service facility.
- 3. CAUTION Do not operate with broken or faulty parts as this may result in exposure to ultraviolet radiation. Contact supplier for replacement parts.
- 4. Do not operate the system if it has a damaged cord or plug, or if it is malfunctioning or if it has been dropped or damaged in any manner.
- 5. Always unplug the system, shut off water flow and release water pressure before servicing or cleaning. Never yank cord to remove from outlet; grasp the wall plug and pull to disconnect.
- 6. Do not use the system for other than intended use. The use of attachments not recommended or sold by the manufacturer may cause an unsafe condition.
- 7. To prevent risk of electrical shock, connect this system only to a properly grounded, grounding-type power supply receptacle that is protected by a Ground Fault Circuit Interrupter (GFCI). Inspect performance of GFCI as per manufacturer's suggested maintenance schedule. If an extension cord is used, ensure it is of a sufficient rating and accepts the plug from this system; never use an adapter.
- 8. Visually inspect this system prior to installation. If the quartz sleeve or lamp is broken, cracked or damaged in any way, do not use. Contact the supplier for replacement parts.
- 9. Keep all connections dry and off the ground. Do not touch plug with wet hands.
- 10. The light emitted by the lamp will cause serious eye damage and burn unprotected skin. Do not plug system into an electrical outlet without first properly securing the lamp into the chamber. Unplug the system prior to removing the lamp from the chamber.
- 11. If the UV system malfunctions or fails, water must be boiled prior to consumption until the UV system is operational and the water lines have been shocked. System failure is indicated by the system's audible and visual alarms or the absence of any indicator light.
- 12. Intended for indoor use only. System must not be exposed to weather elements. In seasonal applications, chamber must be drained to prevent freezing.
- 13. Installation of this system must be in accordance with local plumbing and electrical codes as well as any and all applicable regulations and
- 14. SAVE THESE INSTRUCTIONS.

Note: maximum pressure rating is 100 PSI (6.89 bar)



WARNING – To prevent risk of electrical shock, connect this system only to a properly grounded, grounding-type power supply receptacle that is protected by a Ground Fault Circuit Interrupter. Pull plug before servicing or replacing lamp. Keep all connections dry and off the ground. Do not touch plug with wet hands.



WARNING - Do not look directly at UV lamp when it is operating. The light emitted by the lamp will cause serious eye damage and burn unprotected skin.



WARNING – Read manual before installing or servicing this system. Only authorized personnel possessing a strong understanding of this system should attempt to replace lamp or service this system.

NOTE - Maximum pressure rating is 100 PSI (6.89 bar)

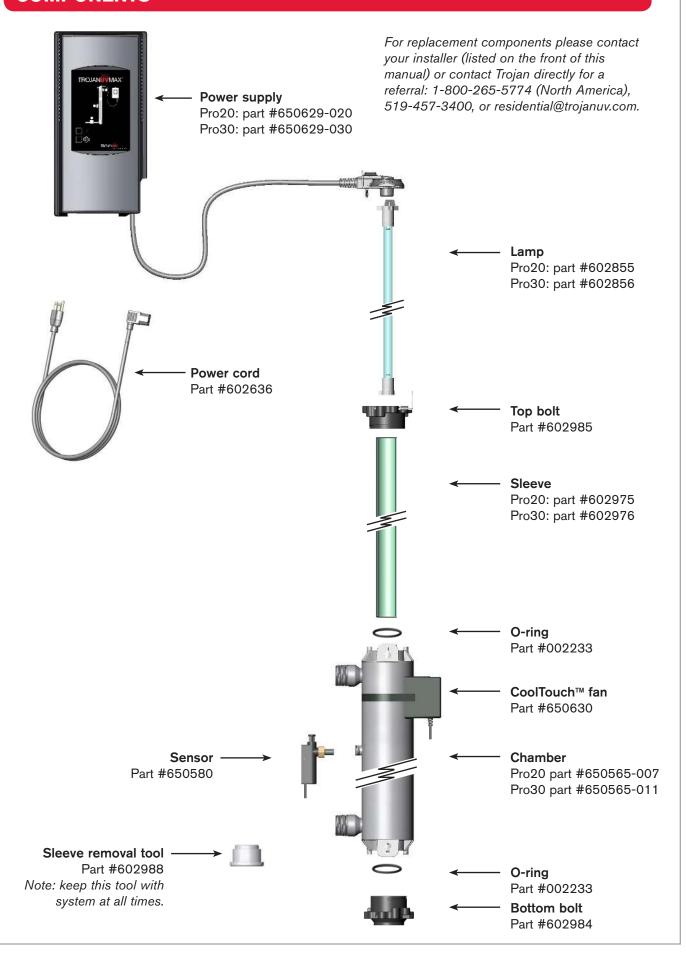
OVERVIEW

INSTALLATION

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COMPONENTS

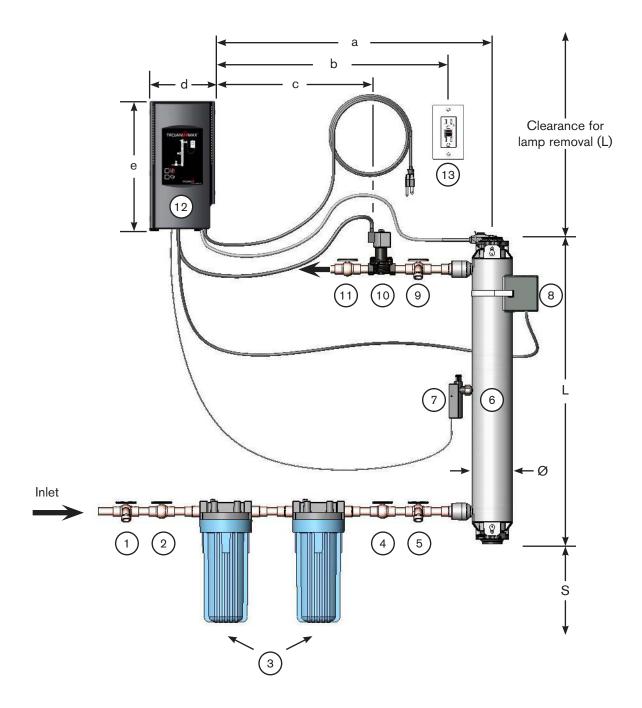


SPECIFICATIONS

	Pro20	Pro30
Rated flow at dose of 40 mJ/cm ²	20 GPM (75.7 LPM)	30 GPM (113.5 LPM)
Electrical		
Voltage	120-240V AC	120-240V AC
Frequency	50-60Hz	50-60Hz
Max. current	1.6 Amp	2.4 Amp
Max. power consumption	160 Watts	230 Watts
Lamp power consumption	140 Watts	200 Watts

Color-coded plug and play connections UV intensity monitor with diagnostic test CoolTouch fan Dynamic flow restrictor Communications ports (two, RJ45) COMMcenter control package Solenoid valve	Yes Yes Yes Yes Optional Optional 316L SST	
CoolTouch fan Dynamic flow restrictor Communications ports (two, RJ45) COMMcenter control package	Yes Yes Yes Optional Optional 316L SST	
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COMMcenter control package	Optional Optional 316L SST	
	Optional 316L SST	
Solenoid valve	316L SST	
Chamber material	0.40000	
Rated service life of lamp	2 years	
Inlet and outlet	Combo 1 ¹ /4" NPT, 1" FNPT	
Controls		
Audible alarm mute button	Yes	
New lamp button	Yes	
Lamp age indicator	Yes	
Lamp operation indicator	Yes	
Ballast operation indicator	Yes	
Solenoid operation indicator	Yes	
Fan operation indicator	Yes	
Sensor reading indicator	Yes	
Operating Parameters		
Maximum operating pressure	100 PSI (689 kPa)	
Minimum operating pressure	10 PSI (69 kPa)	
Maximum ambient air temperature	104°F (40°C)	
Minimum ambient air temperature	32°F (0°C)	
Maximum humidity	100%	
Maximum hardness	120 ppm (7 grains per gallon)	
Maximum iron	0.3 ppm	
Minimum UVT	75%	
NSF/ANSI certification	Standard 55 Class A	
Other certifications	CULUS	

DIMENSIONS & LAYOUT



Model	L	S (min.)	Ø	a (max.)	b (max.)	C (max.)	d	е
Pro20	30.8"	12"	4"	48"	72"	72"	6.5"	13"
	(78cm)	(30cm)	(10cm)	(122cm)	(182cm)	(182cm)	(16.5cm)	(33cm)
Pro30	40.6"	12"	4"	48"	72"	72"	6.5"	13"
	(103cm)	(30cm)	(10cm)	(122cm)	(182cm)	(182cm)	(16.5cm)	(33cm)

- (1) Sample valve: Allows for sampling of raw water.
- 2 Shut-off valve: Required to allow maintenance of pre-treatment equipment.
- Pre-treatment (illustrative only): For the UV system to operate effectively, the water should meet certain water quality parameters, as outlined below. To meet these, pre-treatment of the water may be required. Pre-treatment equipment must be installed BEFORE the UV chamber. Pre-treatment systems can be comprised of one or more of the following elements: sediment filters; carbon filters; iron removal systems; water softeners; cyst reduction filters, etc.

Water Quality Requirements:

Iron: < .3 PPM (.3 mg/L)

Hardness: < 120 PPM (7 Grains Per Gallon)

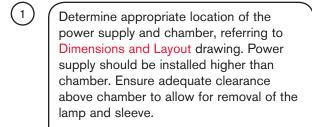
% UVT: > 75%

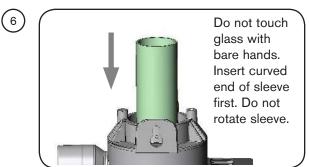
IMPORTANT:

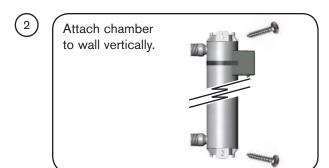
A 5 micron (nominal) sediment filter must be installed before the UV system and after any water softening equipment.

- 4 Shut-off valve: Required to allow maintenance of UV system.
- 5 Sample valve: Allows for sampling of water entering UV chamber; necessary in order to confirm water being treated is of adequate quality.
- (6) UV chamber: Provides disinfection of the water. MUST BE INSTALLED VERTICALLY.
- Sensor: Monitors UV output to ensure proper dose (UV exposure) is being provided. Unique test function allows verification of sensor operation.
- (8) CoolTouch™ fan: Removes excess heat from stagnant water in chamber during periods without water flow.
- 9 Sample valve: Allows for verification of sampling of water immediately following UV treatment; necessary in order to confirm proper operation of UV system.
- Solenoid valve: Optional piece of equipment supplied by Trojan. Allows water supply to be shut-off when proper disinfection cannot be assured. Manual by-pass allows for disinfection of water lines using chlorine bleach, following installation and maintenance procedures.
- (11) Shut-off valve: Required to allow maintenance of UV system.
- Power supply: Powers and controls the UV lamp and other devices. Provides human interface, displaying information and allowing control inputs (such as muting the audible alarm).
- Power source: Provides power to the power supply. For safety reasons the outlet must be protected by a Ground Fault Circuit Interrupter (GFCI). NOTE: to protect the power supply, a UL1449 certified (or equivalent) transient voltage surge suppressor is recommended.

INSTALLING THE UV SYSTEM





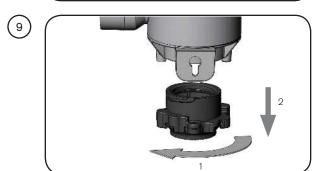


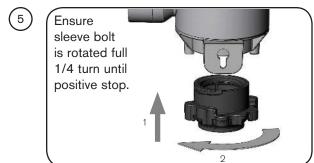
Wet O-ring with water then place over top end of sleeve.

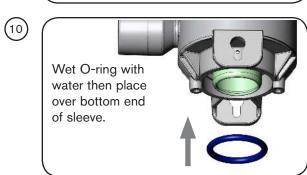
Make all necessary plumbing connections.

Ensure sleeve bolt is rotated full 1/4 turn until positive stop.

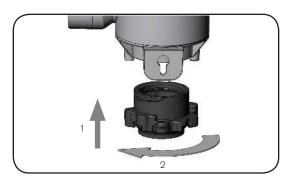




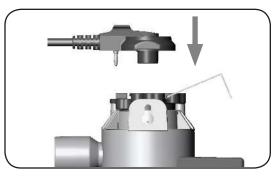








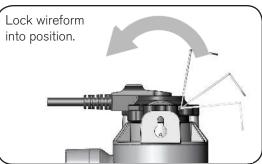
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(12)

Do not touch glass with bare hands. Be sure to rotate lamp completely.

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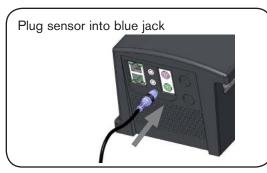
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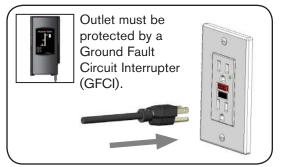
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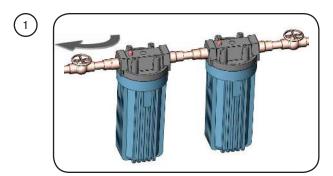
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Let water flow to one faucet or other water outlet, then close the outlet and check for leaks.

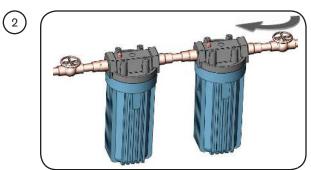
Proceed to Disinfecting The Water Lines.

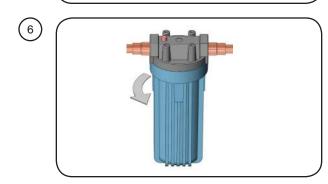
DISINFECTING THE WATER LINES

UV systems disinfect the water using ultraviolet light, treating the water as it passes through the system. When there is a risk that water downstream of the UV system has been contaminated it is critical that these water lines be chemically disinfected. Disinfection of the water lines is therefore required after initial system installation and following any extended period of time during which the system is inoperative, whether due to an alarm condition, a power failure, or for any other reason.

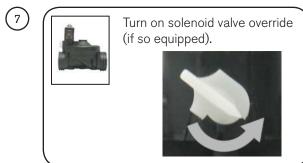


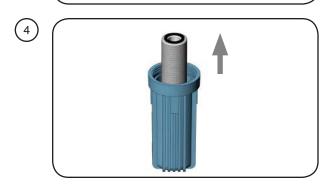


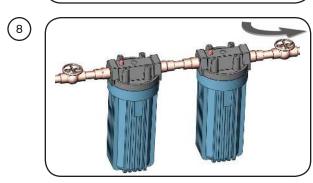




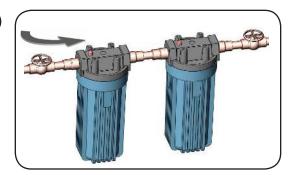












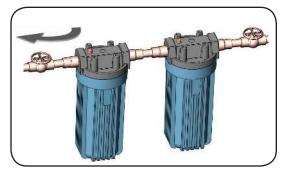
Go to a water outlet and allow the cold water to flow until you can smell bleach, then stop the flow. Allow hot water (if present) to flow until you can smell bleach, then stop the flow. Repeat procedure at all water outlets. Remember to include all faucets, washing machines, toilets, outside taps, and other water outlets. **Note:** You will likely run out of bleach; if you cannot smell bleach at a given outlet, turn off the main water supply, depressurize and add more bleach to the filter housing.

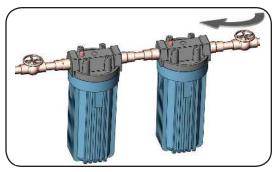


Let the bleach sit in the water lines for at least four hours.

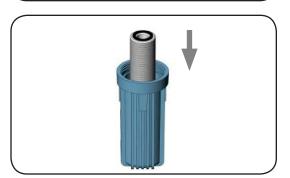


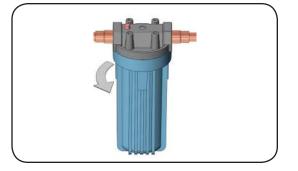




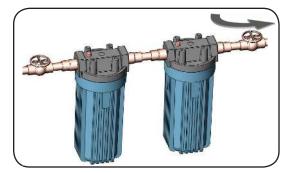




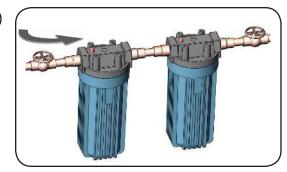




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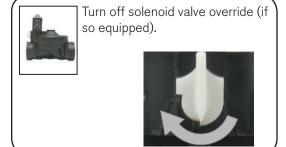
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Flush all water outlets until bleach can no longer be smelled (at least 5 minutes).



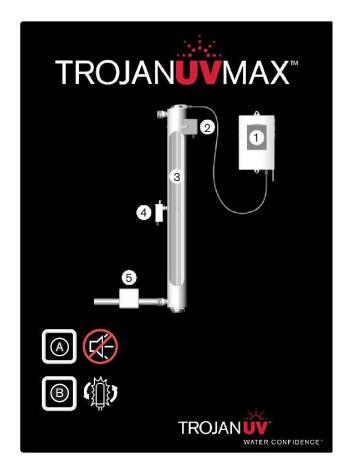
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CONTROL PANEL

Buttons

	Button	Meaning
A	Mute	Press this button in order to turn off the audible alarm. When the alarm is due to the lamp's age, the mute button will deactivate the audible alarm for 7 days; this may be repeated up to a maximum of 4 times.
B	New Lamp	After installing a new lamp, press and hold this button until you hear a beep (about five seconds). This will reset the internal clock.



Indicator lights

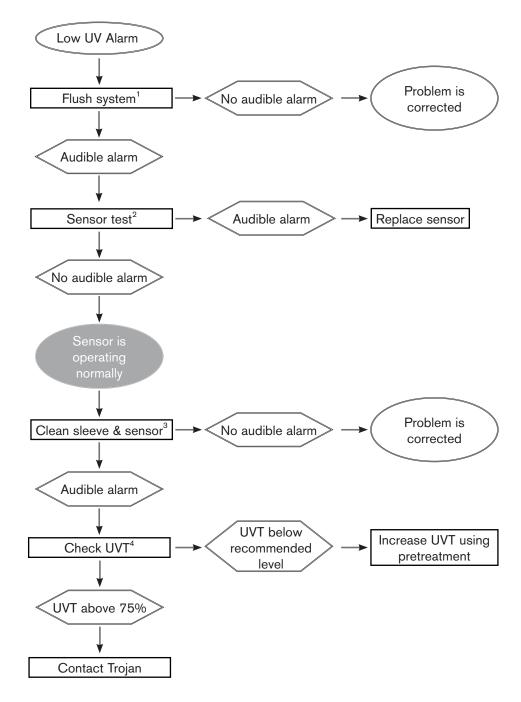
Indicator lights only indicate a problem with the component when flashing red.

	Green	Yellow	Flashing red	Solid red
1	Operating normally	Not applicable	Power supply failure; replace power supply	Ballast inactive due to lamp failure
2	Operating normally	Not applicable	Fan disconnected; reconnect	Not applicable
			Fan turning slower than required; unplug system, clean blades using a Q-tip	
			Fan damaged; replace fan	
3	Operating normally	Warning; lamp will require replacement shortly	Lamp disconnected; unplug system, reconnect lamp and plug-in system again	Lamp inactive due to ballast failure
			Lamp failure; replace lamp	
4	UV dose is adequate and sensor is operating	UV dose is near the minimum required	Sensor disconnected; unplug system, reconnect sensor and plug-in system again	Sensor inactive due to lamp or ballast failure
	normally		UV dose is below minimum required, see Low UV Alarm section	
5	Solenoid valve open	Not applicable	Solenoid valve disconnected; reconnect	Solenoid valve inactive (closed) due to failure of another component, in order to
			Solenoid coil damaged; replace coil (not entire solenoid)	ensure safety of the water supply

TROUBLESHOOTING

Symptom	Possible cause	Possible solution	
No power	GFCI and/or breaker tripped	Reset GFCI and/or breaker	
	Power supply fuse has blown	Replace power supply fuse - see Fuse Replacement section	
	Transient voltage surge suppressor damaged	Replace transient voltage surge suppressor (TVSS)	
_	Power supply damaged	Replace power supply and use a TVSS	
GFCI or breaker repeatedly trips	Connection between lamp and lamp cord is wet	Clean and dry the cord and end lamp pins, check unit for leaks or condensation	
	Short-circuit in the electrical assembly	Replace power supply	
Leak at inlet or outlet	Threaded pipe fittings are leaking	Clean threads, reseal with Teflon tape and retighten	
Leak detected from area of chamber	Condensation of moist air on cold chamber (slow accumulation)	Control humidity or relocate unit	
	O-ring damaged, deteriorated or incorrectly installed	Inspect and replace if deteriorated	
	Sleeve bolt not tight enough	Ensure nut is turned completely (to stops)	
Alarm	See Control Panel section	See Control Panel section	
System is operating but water tests reveal bacterial contamination	Equipment downstream of UV system is acting as a breeding ground for pathogens	Ensure UV is the last piece of treatment equipment	
	Pathogens are residing in the distribution lines post-UV	Ensure all distribution lines have been disinfected with chlorine - see Disinfecting the Water Lines section	
	Recontamination from pipe dead-ends	Remove any pipe dead-ends and flush with chlorine - see Disinfecting the Water Lines section	

LOW UV ALARMS



- In some cases, short-term flows of low-UVT water can be created following and during the regeneration cycle of a water softener, resulting in a sensor alarm. Flushing the UV system alleviates this condition until the softener goes through another regeneration cycle. In the longer term, the softener's settings must be modified. To flush the UV system, first turn the solenoid valve bypass switch counter-clockwise to override the shut-off, then open a tap downstream and let water run for two (2) minutes. Disinfect the water lines following the procedures outlined under "Disinfecting The Water Lines" in the Installation section.
- 2 The TrojanUVMax is equipped with a unique, patented sensor that is capable of self-diagnosis. Simply press the button located at the top of the sensor and hold until the audible alarm stops (usually about 5 seconds). If the audible alarm is still present after 30 seconds, release the button and replace the sensor.
- 3 Refer to Sleeve Cleaning And Lamp Replacement section of the Owner's Manual.
- 4 Contact Trojan or your water treatment dealer for a test of the ultraviolet transmittance (UVT) of the water.

SLEEVE CLEANING & LAMP REPLACEMENT

Sleeve cleaning

Minerals in the water slowly form a coating on the sleeve. This coating must be removed because it reduces the amount of UV light reaching the water, thereby reducing disinfection performance. The need to clean the sleeve will be indicated by a low UV alarm (flashing red indicator light beside the sensor on control panel - see Control Panel section for details). When cleaning is required, follow the instructions below and re-install the current lamp.

Lamp replacement

The amount of UV light created by the lamp decreases over time, requiring that the lamp be replaced. The system will automatically notify you when it is time to replace the lamp (the lamp should last approximately 24 months). If the lamp requires replacement, follow the instructions below and install a new lamp. NOTE: The UV system is designed to operate continuously and should not be shut off for short periods of time, such as over a period of less than three weeks.

Equipment required:



Screwdirver can be of any kind.



Clean cotton, latex or plastic gloves are prefered.





Scale remover such as CLR™ or Lime-Away™.

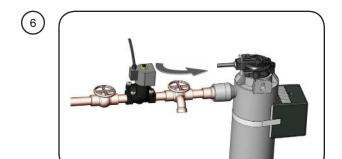


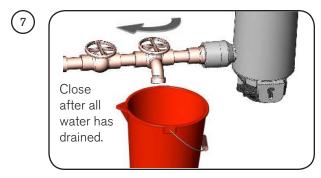
Cloth must be soft, lint-free, and chemical-free. No clean-wipes.

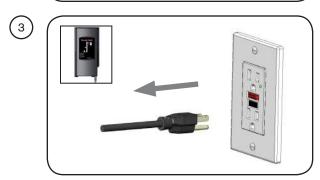


Cottom swab.

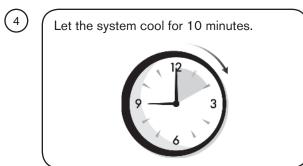
Solenoid representative only. Not on all systems.

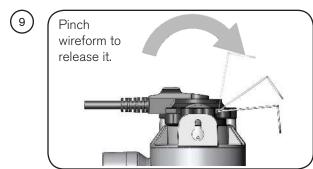


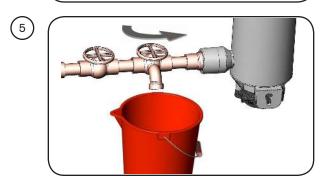


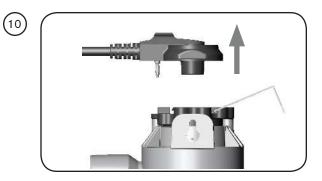


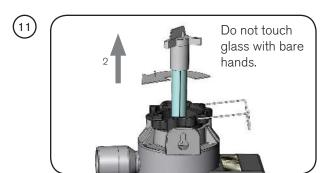




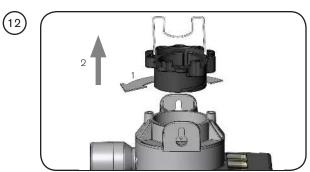


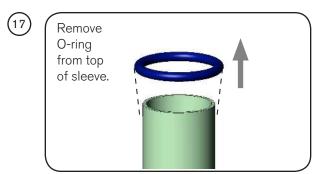


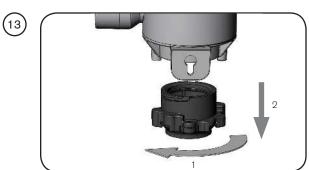




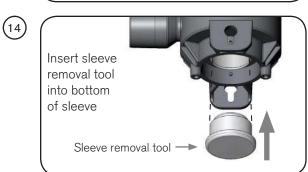
Remove sleeve.
Water will
escape - have
bucket under
chamber.

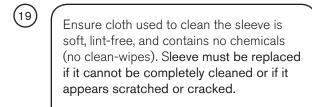


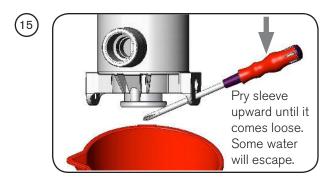




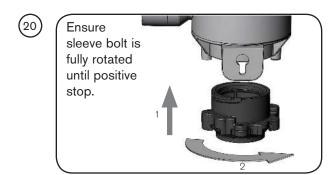












Wet O-ring with water then place over bottom end of sleeve.

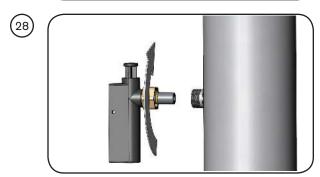
Do not touch glass with bare hands. Insert curved end of sleeve first. Do not rotate sleeve.

Ensure sleeve bolt is fully rotated until positive stop.

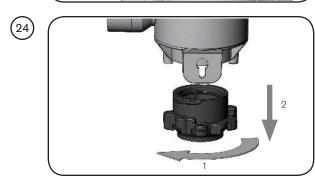
Wet O-ring with water then place over top end of sleeve.

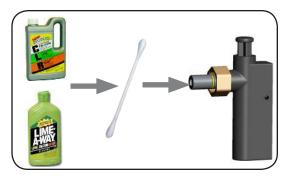
Re-install current lamp if it does not need replacement. Be sure to rotate lamp completely. Do not touch glass with bare hands.

Ensure sleeve bolt is fully rotated until positive stop.



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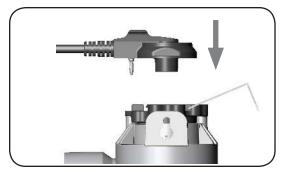










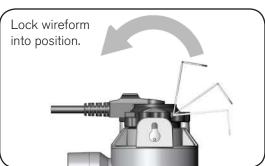


36

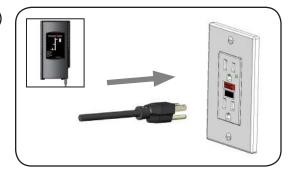
Disinfect the water lines. Refer to

Disinfecting the Water Lines in Installation section.

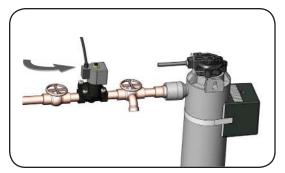




(33)

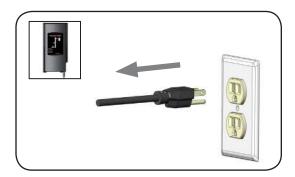


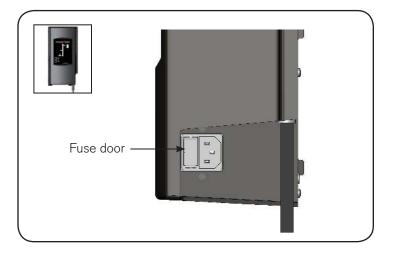




FUSE REPLACEMENT

The system comes equipped with one functioning and one spare 250V 2A fuse. To access the fuses, first unplug system and disconnect the power cord from the power supply. Remove the fuse door by pushing in the tab on one side using a knife or other tool and gently prying outwards. Repeat on the other side.





WARRANTY

Our Commitment

To maximize the superior quality of Trojan UV disinfection, each product must be properly sized, installed, and maintained. If you experience difficulty with your Trojan product, our Technical Support Centre is available to help you.

During the applicable warranty period noted below, Trojan will provide warranty coverage, described below, for your product.

How to Get Help

To obtain help under this warranty, contact the Trojan Technical Support Center at 1-800-265-5774 or by email at residential@trojanuv.com. Please have available the model number, the date of purchase, the name of the dealer from whom you purchased your Trojan product ("the source dealer"), as well as a description of the problem you are experiencing. A Trojan technician will help you troubleshoot the problem and isolate the defective part.

To establish proof of purchase to make a warranty claim, you will need to either retain your original invoice or complete and return a warranty card, which will register you as a product owner in Trojan's database.

Specific Warranty Coverage

Warranty coverage is specific to the following Trojan products: TrojanUVMax™

Ten-Year Limited Warranty for TrojanUVMax™ Reaction Chamber

Trojan warrants the reaction chamber on the TrojanUVMax™ product to be free from defects in material and workmanship for a period of ten (10) years from the date of purchase. During this time, Trojan will repair or replace, at its option, any defective TrojanUVMax™ reaction chamber.

Please return the defective part to a Trojan dealer, who will return it to Trojan. Trojan will either make the necessary repairs or, if Trojan determines that a replacement is required, will provide a replacement part. Trojan will then return the part to the dealer. This warranty does not include shipping and handling charges which will be collected from you by the dealer.

Parts repaired or replaced under this ten (10) year warranty will be covered under warranty to the end of the original ten (10) year warranty period. This warranty is also subject to the conditions and limitations outlined under the heading "General Conditions and Limitations" below.

Five-Year Limited Warranty for Structural, Hardware and Electrical Components

Trojan warrants the structural, hardware, and electrical components to be free from defects in material and workmanship for a period of five (5) years from the date of purchase. During this time, Trojan will repair or replace, at its option, any defective parts covered by the warranty.

Please return the defective part to a Trojan dealer, who will return it to Trojan. Trojan will either make the necessary repairs or, if Trojan determines that a replacement is required, will provide a replacement part. Trojan will then return the part to the dealer. This warranty does not include shipping and handling charges which will be collected from you by the dealer.

Parts repaired or replaced under this five (5) year warranty will be covered under warranty to the end of the original five (5) year warranty period. This warranty is also subject to the conditions and limitations outlined under the heading "General Conditions and Limitations" below.

One-Year Limited Warranty for Lamps, Sleeves and UV Sensors

Trojan warrants original lamps, sleeves and UV sensors to be free from defects in material and workmanship for a period of one (1) year from the date of purchase. During this time, Trojan will repair or replace, at its option, any defective parts covered by the warranty.

The warranty period for lamps and sleeves may be verified using date codes in addition to purchase receipts and Trojan's database of registered owners. Trojan will advise you whether the defective item needs to be returned to a Trojan dealer for failure analysis. Replacement lamps and sleeves provided under warranty will be sent to your Trojan dealer.

If the UV sensor experiences a problem which Trojan confirms is covered by warranty, please return the sensor to a Trojan dealer who will return it to Trojan. Trojan will either repair or replace the sensor and return the sensor to your dealer.

This warranty on lamps, sleeves and sensors does not include shipping and handling charges which will be collected from you by the dealer. Parts replaced under this one (1) year warranty will be covered under warranty to the end of the original one (1) year warranty period. This warranty is also subject to the conditions and limitations outlined under the heading "General Conditions and Limitations" below.

Warranty for Replacement Lamps and Parts

Trojan warrants replacement lamps, purchased for annual routine maintenance, and other parts purchased to repair product components that are no longer covered by the original warranty, to be free from defects in material and workmanship for a period of three (3) months from the date of purchase. During this time, Trojan will repair or replace, at its option, a defective replacement lamp or part free of charge except for shipping and handling charges.

The warranty period on replacement lamps and parts will be verified using date codes and/or purchase receipts. Trojan will advise you whether the defective item needs to be returned to a Trojan dealer for failure analysis. Replacement lamps and parts provided under warranty will be sent to your Trojan dealer.

General Conditions and Limitations

None of the above warranties cover damage caused by improper use or maintenance, accidents, acts of God or minor scratches or imperfections that do not materially impair the operation of the product. The warranties also do not cover products that are not installed as outlined in the applicable Owner's Manual.

The limited warranties described above are the only warranties applicable to the Trojan products listed in the "Specific Warranty Coverage" section. These limited warranties outline the exclusive remedy for all claims based on a failure of or defect in any of these products, whether the claim is based on contract, tort (including negligence), strict liability or otherwise. These warranties are in lieu of all other warranties whether written, oral, implied or statutory. Without limitation, no warranty of merchantability or of fitness for a particular purpose shall apply to any of these products.

Trojan does not assume any liability for personal injury or property damage caused by the use or misuse of any of the above products. Trojan shall not in any event be liable for special, incidental, indirect or consequential damages. Trojan's liability shall, in all instances, be limited to repair or replacement of the defective product or part and this liability will terminate upon expiration of the applicable warranty period.







System tested and certified by NSF International against NSF/ANSI Standard 55 for disinfection performance, Class A. NSF information pertains to TrojanUVMax™ Pro Series models.

This Class A system conforms to NSF Standard 55 for the disinfection of microbiologically contaminated water that meets all other public health standards. The system is not intended for treatment of water that has an obvious contamination source, such as raw sewage; nor is the system intended to convert wastewater to microbiologically safe drinking water. The system is intended to be installed on visually clear water (not colored, cloudy, or turbid water). If this system is used for the treatment of surface waters a prefilter found to be in compliance for cyst reduction under NSF/ANSI Standard 53: Drinking Water Treatment Units - Health Effects shall be installed upstream of the system.

NSF Standard 55 defines waste water to include human and/or animal body waste, toilet paper, and any other material intended to be deposited in a receptacle designed to receive urine and/or feces (black waste); and other waste materials deposited in plumbing fixtures (gray waste).

