



HI-MSV STERILIZER INSTALLATION INSTRUCTION SHEET

CAUTION: NEVER LOOK DIRECTLY AT THE ULTRAVIOLET LIGHT WITH THE NAKED EYE. View through a piece of ordinary glass or optical glasses. **ULTRAVIOLET LIGHT** may cause eye irritation if eye is not properly protected. You should never have to look directly at the **ULTRAVIOLET LIGHT** when installing or trouble-shooting one of our **HI-MSV STERILIZERS!**

STANDARD COMPONENT FEATURES OF THE HI-MSV STERILIZERS:

1. Durable 304 Stainless Steel Pressure Vessel
2. High efficiency germicidal lamp emitting 2537 angstroms of UV energy
3. Quartz tube to protect the germicidal lamp
4. Durable Ballast
5. Light sensor with relay and alarm
6. Auxiliary wiring for optional electronic shut-off, external alarm or warning light

PRE-TREATMENT:

- A. The HI-MSV unit should be installed after the well tank and any water treatment equipment (softeners, filters). Always install an In-Line Sediment Filter before the HI-MSV unit to eliminate the possibility of a dirt build-up inside the purification chamber. A complete water test is recommended to determine if additional pre-treatment equipment is necessary.

<u>Untreated Water Quality</u>	<u>Maximum allowable level</u>
Chloride	250.00 ppm
Color	0.00 units
Hardness	8.00 gpg
Iron	0.30 ppm
Manganese	0.05 ppm
pH	6.0-8.5
Total Dissolved Solids	500.00 ppm
Turbidity	5.00 ntu

If untreated water quality exceeds the allowable levels, specific pre-treatment is required.

INSTALLATION:

- A. The ultraviolet unit is designed to be installed in a vertical configuration only. The unit is supplied with two mounting holes in the electrical cabinet located on top of the stainless steel vessel. Remove the screws on the electrical cabinet cover and lift the cover off the cabinet. Secure the unit to the wall leaving at least 36 inches of clearance above the unit for quartz cleaning and germicidal lamp replacement.
- B. Pipe the inlet into the bottom stainless steel nipple. The top stainless steel nipple is the outlet connection. The top nipple includes a recessed flow control. Install unions on the inlet and outlet piping for servicing the unit. A ball valve, or comparable valve, should be piped into the inlet and outlet line of the HI-MSV unit (an optional bypass valve can be installed). See Figure 1 on separate sheet. When using sweat fittings, eliminate direct contact with the stainless steel vessel.
- C. A mandatory recessed flow control is incorporated into the top stainless steel nipple. This flow control will restrict the gpm flow rate to the designed service flow rate of your unit. See Table A for flow details.
DO NOT REMOVE FLOW CONTROL!

Table A

<u>Model #</u>	<u>Inlet/Outlet</u>	<u>GPM Flow</u>	<u>Height</u>	<u>Width</u>	<u>Depth</u>
HI-MSV-6	3/4" MPT	6.0	17"	7"	7"
HI-MSV-10	3/4" MPT	10.0	23"	7"	7"
HI-MSV-20	1.0" MPT	20.0	37"	7"	7"

- D. Two wire connections, located inside the electrical cabinet, are provided to energize an optional solenoid valve when the alarm is activated.
This optional solenoid: (if used)
 - *will prevent untreated water from entering the treated water lines.
 - *should be installed on the outlet piping.
- E. Remove the gray gland nut on the top of the stainless steel vessel and remove the quartz tube. Pour 1 quart of household bleach into the stainless steel vessel through the top opening. This will help disinfect the household piping system.

- F. Locate the quartz tube and place back into vessel through top opening. The quartz tube should rest in the support socket at the bottom of the vessel. Place the silicone o'ring over the exposed portion of the quartz tube. Thread the gland nut onto the quartz tube. **DO NOT OVERTIGHTEN OR THE QUARTZ TUBE WILL BREAK!!**
- G. Locate the germicidal lamp and place into the vessel through the center hole in the gland nut. Connect the white electrical connector to the lamp (connector only fits one way). Slowly lower the lamp to the bottom of the quartz tube.
- H. Plug the HI-MSV unit's electrical plug into a grounded 115 volt/60 hertz single phase AC receptacle. **DO NOT USE EXTENSION CORD.** Always unplug the HI-MSV electrical connections before servicing the unit.
TO PREVENT ELECTRICAL DAMAGE TO RELAY AND LIGHT SENSOR FROM POWER SURGES, INSTALL A POWER SURGE PROTECTOR ON YOUR ELECTRICAL OUTLET. The alarm will ring for 5 minutes before initially shutting off. If alarm continues to ring, reference P.5(Quartz eye piece cleaning or replacement).
- I. Open the inlet and outlet valves slowly to fill the unit with water. Open all the faucets in the house or commercial facility. Allow the water to run until a chlorine smell or taste is detected at each faucet.
*Close all faucets and keep closed overnight. The chlorine will destroy any bacteria located in the house piping. In the morning, open the faucets and flush the chlorinated water into the drain. All water entering the piping should be bacteria free, having passed through the HI-MSV sterilizer

SERVICE AND MAINTENANCE:

Germicidal Lamp:

1. The lamp should be replaced on an annual basis.
2. Before removing the germicidal lamp, unplug the HI-MSV unit's electrical connection and remove electrical cabinet cover.
3. Disconnect the white electrical connector from the germicidal lamp.
4. Remove germicidal lamp and discard properly. **THE LAMP IS GLASS AND WILL BREAK!**
5. Wipe replacement germicidal lamp with standard alcohol. This will remove any dirt or finger prints.
6. Insert germicidal lamp into the opening in the gland nut.
7. Connect the white electrical connector to the end of the germicidal lamp(connector only fits one way). Slowly lower the lamp into the vessel. Secure electrical cover to cabinet.

Quartz Tube:

The quartz tube may periodically become fouled with dirt from the water supply and need cleaning. Review the following procedure for quartz cleaning.

1. Close the inlet and outlet ball valves. Open boiler drain on inlet piping to vent unit's internal water pressure.
2. Disconnect the HI-MSV unit's electrical connection from receptacle and remove electrical cabinet cover.
3. Remove the germicidal lamp by following the previously mentioned procedure.
4. Loosen the gray gland nut on the top of the stainless steel vessel. Internal water pressure has already been vented to the boiler drain.
5. Carefully remove the gray nut.
6. Remove the silicone O'ring from the quartz tube.
7. Slowly pull the quartz tube away from the vessel.
8. Clean the quartz tube with standard alcohol to remove any dirt or finger prints. When the quartz tube is clean, slowly slide it into the vessel. The quartz tube should rest in the socket support in the bottom of the vessel.
9. Place the silicone O'ring over the quartz tube.
10. Secure the gray gland nut by handtightening only.
11. Slide the germicidal lamp into the vessel by following previous instructions.
12. Open the inlet and outlet ball valves and connect unit to electrical receptacle. Secure electrical cover to cabinet.

MSV relay replacment:

1. Close the inlet and outlet ball valves.
2. Disconnect the HI-MSV unit's electrical connection from receptacle and remove electrical cabinet cover.
3. Disconnect the red, white and black wires from the electrical strip terminals 1,2 and 3.
4. Lift the relay assembly away from the quartz eye piece.
5. Install new relay assembly by following previous instructions.
6. Open the inlet and outlet ball valves and connect unit to electrical receptacle. Secure cover to electrical cabinet.

Quartz eye piece cleaning and/or replacement:

1. Close the inlet and outlet ball valves. Open boiler drain on inlet line to vent unit's internal water pressure.
2. Disconnect the HI-MSV unit's electrical connection from receptacle and remove electrical cabinet cover.
3. Remove the relay assembly by following procedures in preceeding section.
4. Loosen the quartz eye piece slowly. Internal water pressure has already been vented to the boiler drain.
5. Clean the quartz eye with standard alcohol then inspect the silicone o'ring for wear(replace o'ring if necessary). Connect quartz eye to vessel. Do Not overtighten.
6. If the quartz eye is cracked replace with a new assembly.
7. Open the inlet and outlet ball valves and connect unit to electrical receptacle. Secure cover to electrical cabinet.

Ballast replacement:

1. Disconnect the HI-MSV unit's electrical connection from receptacle and remove electrical cabinet cover.
2. Remove the two nuts and bolts that secure the ballast to the cabinet.
3. Disconnect the white electrical connector from the germicidal lamp.
4. Remove the black and white ballast wires from the electrical strip terminals 2 and 3.
5. Secure the new ballast to the HI-MSV cabinet with the 2 nuts and bolts.
6. Secure the black and white ballast wires to the electrical strip terminals 2 and 3.
7. Connect the white electrical connector to the end of the germicidal lamp(connector only fits one way). Slowly lower the lamp into the vessel.
8. Secure the cover to electrical cabinet and connect unit to electrical receptacle.

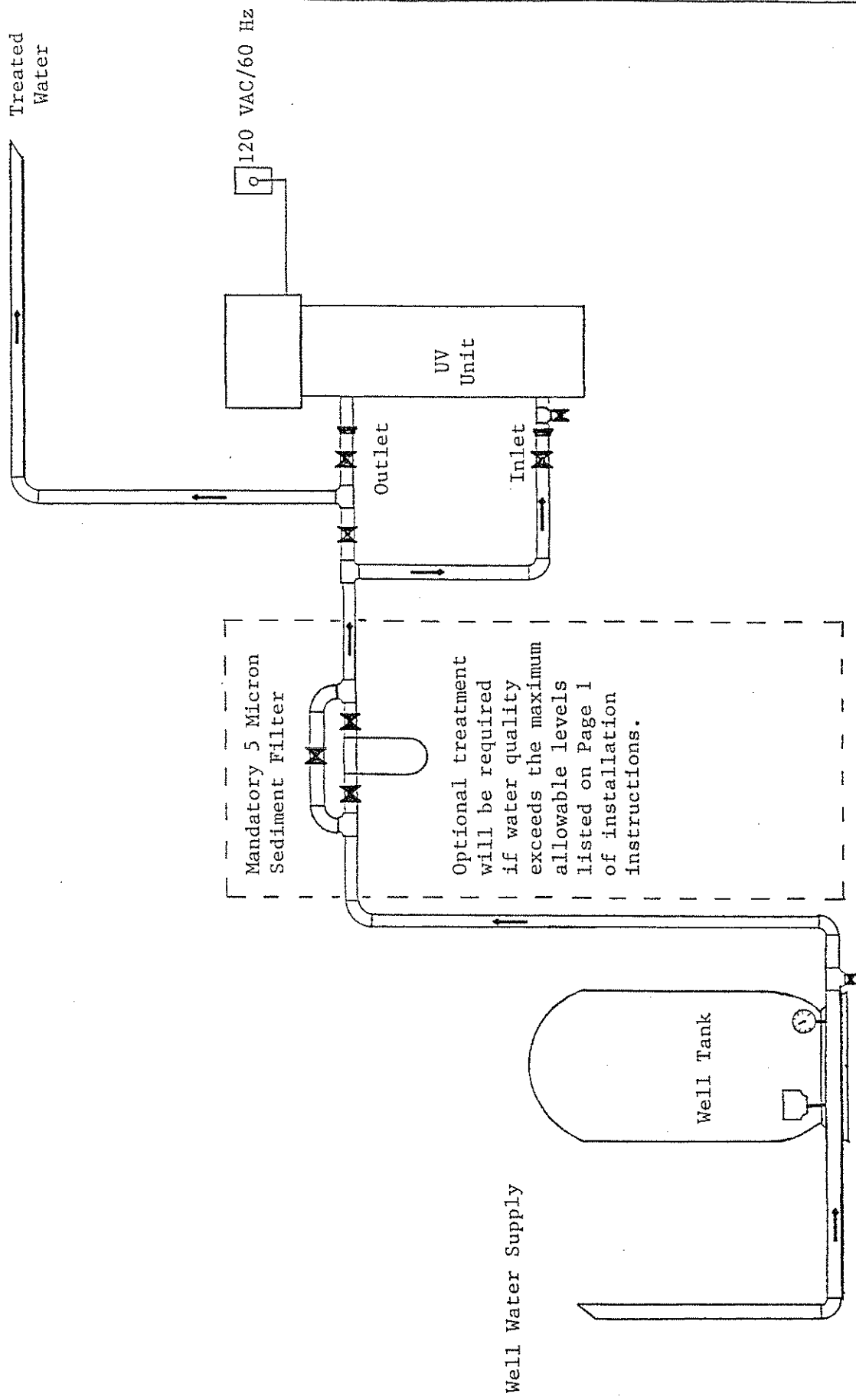
<u>Model #</u>	<u>Lamp Number</u>	<u>Lamp Watts</u>	<u>Ballast Number</u>	<u>Quartz Length</u>
HI-MSV-6	GPH330T5VH/4	14.0	SSGPH287/4	13-3/4" CE
HI-MSV-10	GPH450T5VH/4	25.0	SS16550A/4	19" CE
HI-MSV-20	GPH810T5VH/4	40.0	SS16550/4	33-1/2" CE

TROUBLE SHOOTING:




PROBLEM	POSSIBLE CAUSE	SOLUTION
1. Alarm ringing	A. Germicidal lamp out.	Replace lamp. See germicidal lamp service section.
	B. Dirty quartz tube.	Clean quartz. See quartz tube service section.
	C. Dirty quartz eye.	Clean eye. See quartz eye service section.
	D. Defective ballast.	Replace ballast. See ballast service section.
2. Alarm ringing with lamp on.	A. Defective relay assembly.	Replace relay assembly. See relay service section.
3. No alarm when lamp is out.	A. Defective relay assembly.	Replace relay assembly. See relay service section.

If you continue to have a problem, contact Master Water Conditioning and we can provide immediate, over the phone, assistance. Field support will also be provided if necessary.

**MASTER WATER CONDITIONING CORPORATION
224 SHOEMAKER ROAD
POTTSTOWN, PA. 19464
610-323-8358**



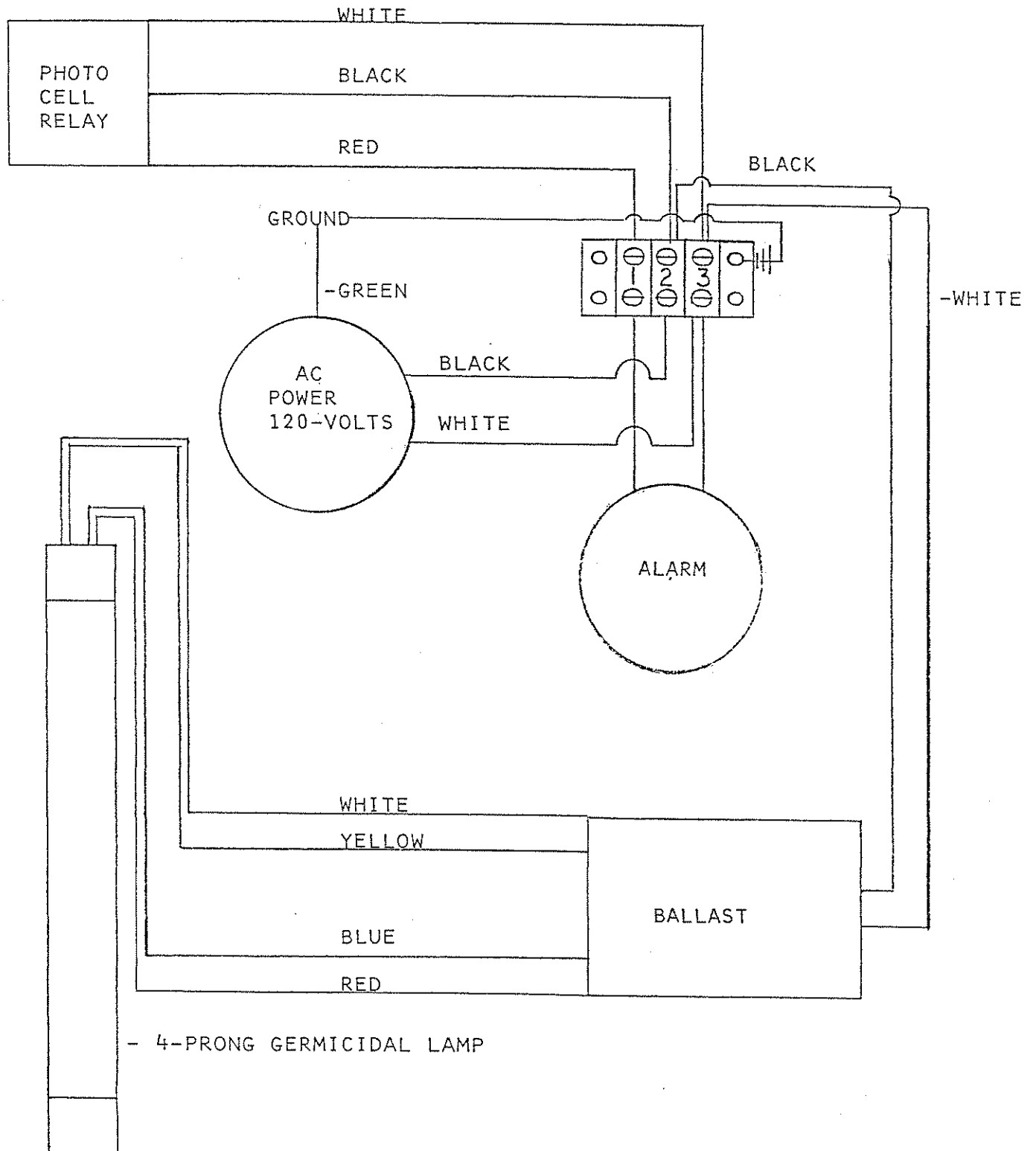
Optional treatment will be required if water quality exceeds the maximum allowable levels listed on Page 1 of installation instructions.

-  Ball Valve
-  Union
-  Boiler Drain

Master Water Cond.		
HI-MSV Series UV		
8/90	MAP	No scale

FIGURE 1

MSV-WIRING SCHEMATIC



ULTRAVIOLET ONE YEAR WARRANTY

This Ultraviolet Sterilizer is warranted for a period of one year from date of purchase by first user against defects in materials and workmanship except for the Ultraviolet Lamp which is warranted for 90 days from date of purchase against defects in materials and workmanship.

This warranty shall be void if the Ultraviolet Sterilizer is moved from the place of original installation and if not installed in accordance with instructions furnished by Master Water Conditioning Corporation.

This warranty shall be void in the event of damages from external sources or where the Ultraviolet Sterilizer has been operated at pressure in excess of 100 pounds per square inch or at a temperature in excess of 100 degrees F, or below 32 degrees F. All defective parts shall be returned pre-paid to Master Water Conditioning Corporation for inspection. Master shall not be liable for labor charges other than Master factory repairs.

All warranties including implied warranties are limited in duration to a one year period from the date of purchase by the original user unless otherwise expressly set forth above. Incidental costs or consequential damages are not covered by this warranty.

This warranty gives you specific legal rights and you may have other rights which vary from state to state. Some states do not allow limitations on duration of implied warranties or exclusion of incidental or consequential damages so the above limitations may not apply to you.

All claims must be submitted in writing to Master Water Conditioning Corporation at 224 Shoemaker Road, Pottstown, Pennsylvania 19464, within thirty (30) days from the discovery of the defect. Master Water Conditioning Corporation thereafter will correct defective parts and workmanship or rusting, corrosion or bursting within sixty (60) days.