

# Owners Instruction Manual



## Domestic Single Tank Systems

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### **Foreword**

The Ultra Clear single tank aerated wastewater treatment systems, Models ST10 and ST8, have been designed to meet the NSW Health Department Guidelines, and Australian Standard. The systems have been tested at the AWTS Manufacturers Association's test site at Moss Vale Sewer Plant in the Southern Highlands.

The Ultra Clear single tank systems have been designed by Darryl Rebbeck. The design allows ease of maintenance and servicing, allowing easy and full access to all chambers, to ensure the efficient functioning of your system.

This handbook will provide information on the function of your ULTRA CLEAR AWTS. Your authorised service technician will be able to help further if you have any queries.

September 2018

## **Description & Function**

### **Primary Treatment**

All waste water and solids from house enter primary treatment chamber where the digestion process takes place. The presence of anaerobic micro organisms quickly multiply to break down fecal solids to an inert waste.

To maintain the highest level of anaerobic action in the primary chamber, the exclusion of certain chemical and anti-bacterial cleaning products is very important.

### **Aerobic Treatment**

The aerobic treatment consists of two chambers with media pack fixed below water level. Oxygen is supplied to the liquid through diffusers to produce an aerobic state. Microbes quickly form and attach to media pack. These microbes, called aerobes, clean the water as it passes through.

### **Surge Control**

A surge control device is located between the primary and secondary treatment chambers. This allows water to rise and fall by up to 200 litres in the primary treatment chamber, to reduce water surging, (e.g. bath water, washing machine), through the aeration chambers to less than 10 litres per minute, allowing complete treatment of influent.

### **Sludge Return**

The settling sludge in the sedimentation chamber is returned to the primary inlet of septic chamber.

### **Settling Chamber**

Suspended solids are allowed to settle under still conditions. Settled particles (called sludge) return automatically to primary chamber inlet, by a venturi device, which is set by the service technician.

### **Disinfection**

Although clear, the clarified water will contain some bacteria which needs to be removed. Water flows through a regulated chlorination device to the retention chamber, removing final bacteria before flowing into pump chamber.

### **Effluent Disposal**

Treated effluent is automatically pumped onto gardens and lawns. Disposal area is to comply with local Council requirements.

The maintenance of filters and irrigation sprinklers is the responsibility of the owner or tenant of property.

### **Operation**

When all drainage and electrical supply is connected to unit by licensed contractors, the system is commissioned by our service technician. Landscaping must be completed by the owner to comply with local Council requirements. The system operates automatically. Any adjustments to system should be carried out by authorised technicians.

### **General**

Power consumption to run system is similar to an average household refrigerator.

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## **Intended Use**

The system is intended for the treatment of all domestic waste water for up to 10 persons per household for Model ST10, and for up to 8 persons per household for Model ST8. All household waste water is recycled by treatment using anaerobic and aerobic bacteria, with a final disinfectant agent. Safe, clean, treated effluent is irrigated onto lawns and gardens, according to government regulations.

## **Servicing Requirements**

The system must be serviced every 3 months as required by Health Department and local Councils. We recommend service by Ultra Clear Wastewater Treatment Systems or our authorised service agents only to retain full warranty benefits. If system is in an enclosure, a working gateway must be provided. Ensure all manholes on tank and electrical box are clear of foreign objects. **Strictly no bark chips or aggregate on tank.**

At each service, the technician will take water samples, sludge readings, make adjustments where required, replenish chlorine, and report to governing bodies. A copy of the service report is left for the customer.

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## **Basic Operating Instructions**

1. Ensure system is serviced every 3 months by approved service technician.
  2. Use correct products as per manual.
  3. Respond to alarms as indicated in manual.
  4. Do not disconnect power supply to system.
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## **Trouble Shooting**

### **Low Air Alarm**

- Press alarm mute button, the alarm will reset in 24 hours.
- Phone Ultra Clear Wastewater Treatment Systems or your authorised service agent.
- The air blower is not operating. Repairs may need to be carried out, e.g. chamber block kit.

### **High Water Alarm**

- Press alarm mute button, the alarm will reset in 24 hours.
- Especially after mowing or work being carried out in the yard, make the following checks.
  1. Ensure irrigation taps are turned on.
  2. If filter is installed, ensure it is clean. Turn off pump at control box by disconnecting irrigation pump plug, to avoid being sprayed with water. Remember to turn pump on when filter is cleaned.
  3. Check sprinkler outlets for any blockages.
  4. Check irrigation line for kinks.
- If irrigation line, etc. are OK, phone Ultra Clear Waste Water Treatment Systems or your authorised service technician.
- High water alarm can indicate pump failure, technician to repair or replace.

### **Bad Odours from System**

- Wrong products being used, or system overload with overuse.
- Check products used. Especially avoid any disinfectants, bleaches or antiseptics and overuse of laundry powders and fabric softeners.
- Ensure washing loads are spread over the day.

### **Bad Odours from Sprinklers**

- The air blower may not be working to its full capacity, causing low aeration.
- Phone Ultra Clear Wastewater Treatment Systems or your authorised service technician.

### **Blocked Drainage Lines**

- Blocked drainage lines from house to the system are plumbing problems.
- Check drainage line at inspection opening to clear.
- Contact your local plumber or drainer if necessary.

## **Electrical**

- After power black outs or electrical storms it is advisable to check meter box to ensure all circuit breakers are on.
  - All electrical wiring from system to meter box and to alarm panel is the responsibility of the electrician, and is not covered by our warranty.
  - **From January 2010 new alarm panel & control box**
  - The control box is fitted with a rechargeable backup battery.
  - The alarm plate has three leds. Under normal operating conditions, the green power led will light. High water alarm will activate the red water led and the audible alarm will sound to attract attention. If air blower fails the red air led will be activated and the audible alarm will sound to attract attention.
  - Silence alarm by pressing the MUTE button in the middle of the alarm panel.
  - If problem is not rectified within 24 hours, the led will be activated again with the audible alarm. Silence alarm by pressing the MUTE button.
  - If power supply to the treatment system fails, the power led will flash on briefly every 3 seconds, and the alarm will give a brief beep in sequence with the power led. This beep can be muted for 24 hours.
  - The back up battery will keep the alarm panel powered between 2 to 14 days depending on the state of its charge before the power failure. It is automatically recharged when the power is restored to the treatment system.
  - Contact your authorised service technician or Ultra Clear if any alarms occur.
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## **Landscaping**

Ensure drainage is away from system at all times. Do not make gardens that create a pooling effect around tanks. Warranty does not cover storm water damage.

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## **Desludging Requirements**

Ultra Clear Wastewater Treatment Systems service technicians check sludge accumulation levels at each service. This is noted on your service report at *Septic Sludge at Outlet*, in centimetres. You will be advised on the *Comments* section of your service form when a full desludge of primary chamber is required. Sludge build up depends upon the number of persons in the household and upon product usage. Time varies between 3 to 8 years. The owner is responsible for the full pump out cost, to be carried out by an approved contractor.

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## **Safety Information**

To ensure no damage to system and safety of occupants, lids and manhole covers should not be removed other than by authorised service technicians. The electrical wiring must be carried out by licensed electricians. Installation of system to be carried out by licensed plumbers. For safety of service technicians, avoid trees or shrubs larger than two metres in close proximity to tanks. In accordance with government requirements, avoid contact with effluent.

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## **Spreading of Hydraulic Loads**

Avoid use of bath, washing machine and dishwasher at the same time. Spread washing loads during the week where possible.

## **Recommended Product Usage for Ultra Clear AWTS**

### **Washing Powders & Liquids**

Avoid powders with added bleaches and whiteners. The bleach is harmful to the system. No laundry powders or liquids with added softeners. Use recommended dosage or less, too much may cause odour.

### **Fabric Softeners**

Better not used. Coats bacteria and prevents effective treatment of waste water.

### **Products Not to Be Used**

Antibacterial solutions, bleaches, toilet cleansers, products with ammonia.

Aerated systems, like all sewage treatment/disposal systems, are biological, so that if a product kills bacteria in the house, it will kill the bacteria that carry out the sewage treatment.

### **Recommended Products**

We recommend the use of products that are environmentally friendly and safe for use in septic tanks.

#### **Tip**

**When using spray ons, etc. for bathroom cleaning, wipe off with a cloth and rinse cloth in a bucket. Empty contents of bucket in yard, to avoid bleaches, etc. entering the system.**

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## **Responsibility**

The owner of the system is responsible for the operation and maintenance of the system, by following manual instructions, to provide the best effluent possible, in accordance with NSW Health Department new guidelines.

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## **Irrigation / Disposal Area**

Irrigation supplied by Ultra Clear is intended as a starter pack only, and is not covered by warranty. It is the owner's responsibility to install irrigation as required by Council and to maintain irrigation.

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## **Health Department and Local Government Requirements**

1. Follow your local Council requirements.
2. System to be installed in accordance to plans submitted to Council.
3. System is not to be operated until approved by local council, including landscaping requirements.
4. Disposal of irrigated effluent is to remain on your property, with no run off to adjoining properties, drains, gutters, etc., in compliance with government regulations.
5. No fruit or vegetables to be irrigated with the effluent.
6. A continuous maintenance agreement must be held.



**Ultra Clear**  
**Wastewater Treatment Systems**

**Model ST10**  
**Model ST8**

**WARRANTY**

**TANK**

**15 YEARS**

- warranty commencing on installation date

**ALL MECHANICAL AND ELECTRICAL PARTS**

**2 YEARS**

Including air blower, irrigation pump, control box, alarm panel, internal partitions and internal pipework

- warranty commencing on installation date

- 1<sup>st</sup> year includes parts and labour

- 2<sup>nd</sup> year includes **PARTS ONLY**

**NOTE: This warranty is subject to a continuous service agreement being held with Ultra Clear Wastewater Treatment Systems or authorised agents, to ensure proper maintenance of the system. Also subject to installation in accordance with our Plumber's & Electrical Installation Manuals.**

**STATEMENT OF SERVICE LIFE**

All fittings, fasteners and components of the Ultra Clear AWTS other than pumps and motors and electrical are of non-corroding material and designed to function reliably with a **MINIMUM SERVICE LIFE OF 15 YEARS.**

All mechanical and electrical parts have a **MINIMUM SERVICE LIFE OF 5 YEARS.**

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## SERVICE RECORD

	Phone No.	Details
Service Technician		
Plumber		
Electrician		
	Date	Details
Installation		
Commissioned		
Year 1 - warranty		
Service One		
Service Two		
Service Three		
Service Four		
Year 2		
Maintenance payment		
Service One		
Service Two		
Service Three		
Service Four		
Repairs		
Year 3		
Maintenance payment		
Service One		
Service Two		
Service Three		
Repairs		
Year 4		
Maintenance payment		
Service One		
Service Two		
Service Three		
Service Four		
Repairs/Desludge		
Year 5		
Maintenance payment		
Service One		
Service Two		
Service Three		
Service Four		

Repairs/Desludge		
Notes		