



Waste Water Treatment System



Owner's Manual

Garden Master “Elite”

Waste Water Treatment System



Welcome!

Thank you for purchasing the **Garden Master “Elite”** Aerated Wastewater Treatment System (AWTS).

Your Garden Master AWTS is fully automatic in operation and requires little owner intervention to ensure years of service. It is useful that the owner/operator of the system understand some of the broad concepts of the system operation.

This manual has been written to provide this simple explanation and to serve as a future reference so that you can ensure that the system is operating effectively at all times.

The Water Cycle

(a) The water cycle is the term used to describe the naturally occurring processes of rainfall, evaporation, absorption, storage and use of water in the environment. The cycle starts with cloud formation and when rain falls, it is collected on the ground and runs into existing bodies of water such as streams, lakes and rivers. Some of this water finds its way back into the environment through evaporation back into the atmosphere and some finds its way back into the soil through percolation for use by plants and trees.

(b) The system is dynamic and constantly changing. Weather conditions such as humidity and temperature effect the amount of water drawn back into the air by evaporation or transpiration. The amount of rainfall (or lack of it) affects percolation of water into the soil in the proceeding days and months.

(c) Human use of water affects the water cycle in a variety of ways. Specifically water is drawn from its normal course of function within the water cycle and applied to domestic, agricultural and industrial uses. This diverted water, once used must be returned to the water cycle somewhere further downstream. The quality of water within a catchment has a significant impact on environmental and public health. The specific purpose of your **Garden Master** AWTS is to ensure that all waste water is correctly treated before it is returned to the water cycle.

Domestic Waste Water

By statutory requirement all water used in a domestic situation is required to be collected and treated before it is returned to the water cycle. With houses that are not connected to a centralised sewage system this treatment must be carried out in a fully approved on-site wastewater treatment system. This is to protect our environment and public health from waterborne pollutants. This responsibility ultimately lies with the householder and for this reason you should become sufficiently familiar with the operation of your Garden Master AWTS.

A typical domestic dwelling generates wastewater from the kitchen, bathroom, laundry and toilets. Wastewater can be divided into two categories depending on the degree of human waste it contains. Grey water is the largest proportion of wastewater and flows from all the non-effluent sources such as drains, sinks, baths and showers. Black water is from your toilet. Your Garden Master is designed to treat both black and grey water and, after processing, return it to the environment through a suitable irrigation system to the designated land application area.

System Operation

Primary Chamber

Influent enters the chamber via the source whereby scum and solids capable of settling are separated from the raw influent. Primary treated effluent flows through a transfer port to the aeration tank. This tank will also act as a storage chamber for sludge returned via the Clarification Chamber.

Aeration Chamber

Water enters via the Primary Chamber. Air is introduced into this chamber via an air blower to create an environment for aerobic bacteria and other helpful organisms to consume the organic matter present. The aeration tank is designed in a manner to help prevent short circuiting of the wastewater to ensure extended aeration. Media is also present in the tank to support the growth of bacteria.

Clarification Chamber

The Clarification chamber is essentially a quiescent zone where suspended particles/solids are settled out of the water. These particles are returned to either the septic or aeration chambers via a sludge return which aids in further biological reduction, de-nitrification and providing a constant food supply rich in microbes supporting the system through periods of limited flows.

Disinfection

Disinfection is achieved via low doses of chlorine to kill off any remaining harmful organisms. This process is achieved through an automatic chlorinator with sufficient doses to last between maintenance visits.



Irrigation - Designated Land Application System

Your **Garden Master** AWTS has been designed to treat the effluent to achieve the best possible quality water before discharge back into the environment. The designated irrigation area is an integral part of your **Garden Master** system and is designed to accommodate the predicted flow rate of wastewater at the time of system approval.

Monitoring Process

Local Government approval of an AWTS is conditional upon regular maintenance being conducted by an approved service technician. With **Garden Master** this is done by means of a maintenance agreement which ensures that your system is serviced quarterly and the results of the inspections are supplied to the local council. **Garden Master** has an ongoing statistical audit program which collects designated samples and submits these to independent test laboratories for microbiological testing.

Quality of Waste Water after Treatment in an AWTS

Parameter	Acceptable Levels
Biological oxygen demand	<20mg/L
Suspended solids	<30mg/L
Thermo Tolerant Coliforms (after disinfection)	30 cfu/100mL
Dissolved Oxygen	2mg/L

Maintaining your Garden Master

Because your **Garden Master** is fully automatic there is no need for the owner to be concerned. However there are some simple precautions to observe.



DO's

- Avoid using strong acids, alkalis, oils and chemicals in your toilet, bathroom, laundry and kitchen (too much can kill off the working “bugs”).
- Limit the use of water in the dwelling.
- Use only bio-degradable detergents in the laundry and kitchen.
- Try to spread wash loads over different days.
- Try to avoid using the washing machine and shower at the same time.
- Front loader washing machines reduce water usage.
- Have your system serviced every 3 months.



DON'Ts

- Do not use harsh cleaners such as bleaches and anti-bacterial products. Do not pour left over solutions, acrylic paints etc directly down the drain.
- Do not dispose of condoms or sanitary products down the toilet or house drains.
- Do not put products such as hairdye, Napisan, Domestos, cooking oils, metho, turps or excess fats into the system.
- Never turn the system off, even when away on holidays.

Product Usage

“Rule of Thumb” Use “Natural based” products. There are a huge number of these available on the supermarket shelves.

These products cover every possible job that needs to be done around the home.

If you are unsure about anything, don't hesitate to call at our office.

Always keep the lid of your tank clear of objects as the service technician will need to access the manholes to perform regular servicing.

Always keep the ground level below the lid of the system so stormwater cannot wash dirt into the system through the manholes.



To ensure the most effective operation of your Garden Master AWTs system you should familiarise yourself with the contents of this manual. The Garden Master AWTs has been designed to include additional safety margins and minor mishaps and normal household usage will not usually affect the operation of the system.

However if the alarm sounds or strong odours persist this checklist may assist in locating the fault.

Fault Observed	Potential Cause	Remedial Action
Alarm sounds	<ul style="list-style-type: none"> * Irrigation pump not working * Air supply not working * No power at the tank 	<ul style="list-style-type: none"> * Check water levels * Listen for the air compressor * Check power supply source
Water around tank	<ul style="list-style-type: none"> * Irrigation pump not working * Irrigation lines blocked or kinked 	<ul style="list-style-type: none"> * Check water levels * Check irrigation lines and clear sprinklers
Excessive foaming	<ul style="list-style-type: none"> * Too much laundry detergent * Too many washes 	<ul style="list-style-type: none"> * Use recommended quantities * Spread wash loads over different days
Persistent odours	<ul style="list-style-type: none"> * Too much water usage * Excessive chemicals in use 	<ul style="list-style-type: none"> * Add biologic starter pack * Install water saving devices * System will recover
Irrigation system not working	<ul style="list-style-type: none"> * Pump failure * Irrigation lines blocked 	<ul style="list-style-type: none"> * Check water level * Clear lines and sprinklers
Water ponding on irrigation field	<ul style="list-style-type: none"> * Not enough sprinklers working * Excessive water use * Broken irrigation pipe 	<ul style="list-style-type: none"> * Installation should comply with original approval * Install water saving devices * Repair irrigation pipe

How the house alarm works

The alarm plate is usually placed in the laundry of the dwelling or in another suitable place that the homeowner will be able to hear if there is a problem with the system.

Alarm Light

The alarm light will only be displayed if a fault is located. In the unlikely event that this occurs, press the switch in the centre of the plate to mute the alarm buzzer. The light will continue to stay on until a **Garden Master** technician rectifies the problem.

Power

Warning light will come on for air or water. Please inform your technician which light is on - Air or Water.

Mute Switch

This switch is designed to mute the alarm from sounding until the fault is rectified. If Garden Master is not notified of the problem and the fault is not rectified, the alarm will sound again in 24 hours.



Garden Master Servicing

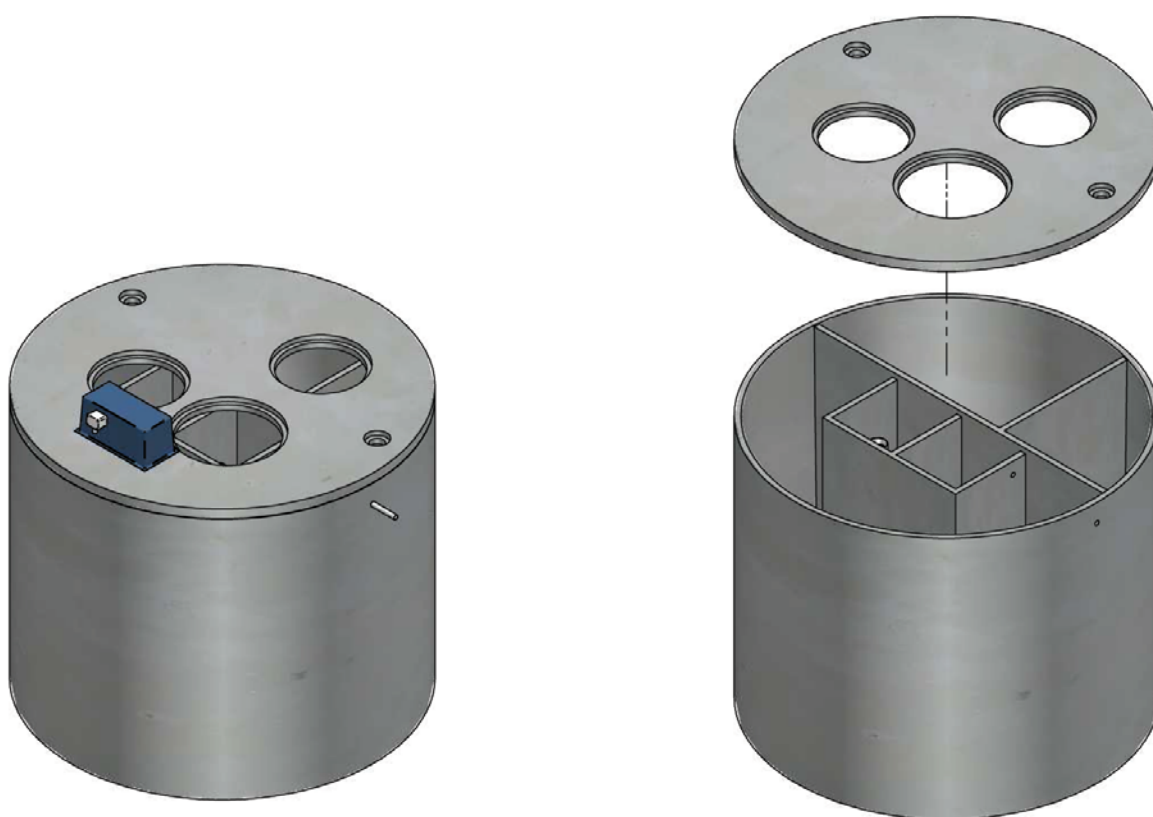
- Your Garden Mastersystem must be serviced every 3 months.
- Service technicians are highly trained and qualified.
- **Garden Master** service all brands of AWTs Systems.
- Annual service contracts available for all Systems.
- Septic Tank troubleshooting and solutions.
- **Garden Master** service both domestic and commercial Aerated Wastewater Treatment Systems.
- Always ring your service provider as soon as the alarm comes on.

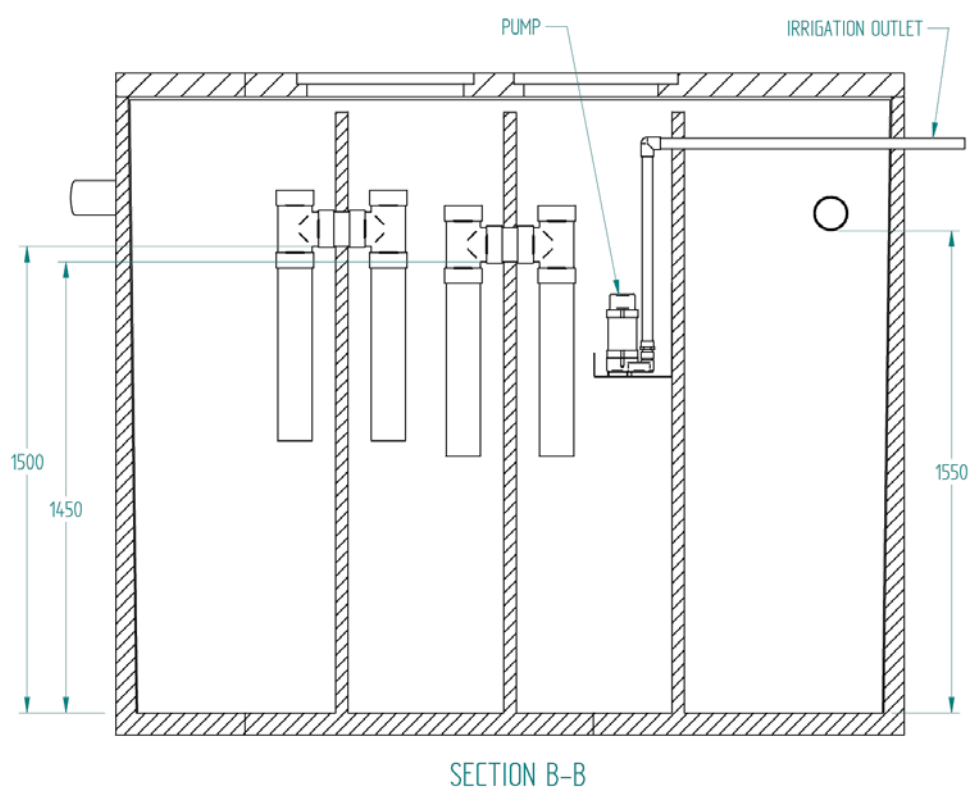
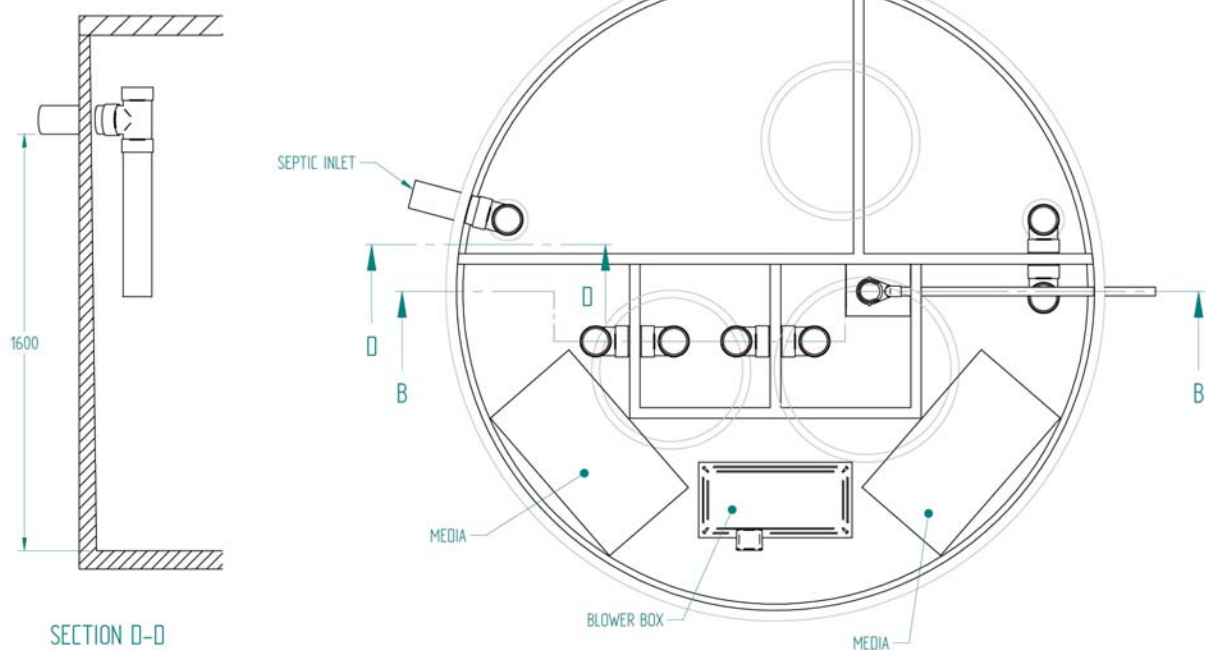


Bio-Logic Elite 7100

Tank Dimensions		Chamber Capacity
Diameter	= 2540mm	A 7100 Lt Tank – AS 1546
Height	= 2050mm	B 3050 Lt Septic Chamber
Bottom of tank to bottom of inlet	= 1600mm	C 3300 Lt Aeration Chamber
3m x 3m x 2050mm deep from high side		D 350 Lt Clarifier
		E 350 Lt Chlorination Chamber
		F Biological Media

NOTE: TANK MUST BE INSTALLED ON A 60mm LAYER OF SAND







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