



Automatic toilet and waste water collection tank and electrically operated macerator pump system.

INSTALLATION AND SERVICING INSTRUCTION MANUAL

PLEASE READ ALL INSTRUCTIONS PRIOR TO PROCEEDING WITH ANY WORK

A permit may be required. Check with the plumbing, drainage and/or electrical inspectors before installation.
Local regulations may stipulate additional installation requirements.

AFTER INSTALLATION, THE INSTALLER MUST HAND THIS MANUAL TO THE OWNER FOR THE PROPER OPERATION AND MAINTENANCE OF THE MULTI-SAN

Failure to do so will result in the installer being made liable under the current legislation for any future claims resulting from any incorrect operation or servicing.

Figure 1 :
Dimensions

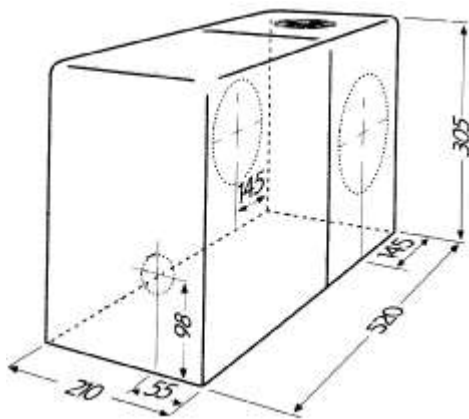
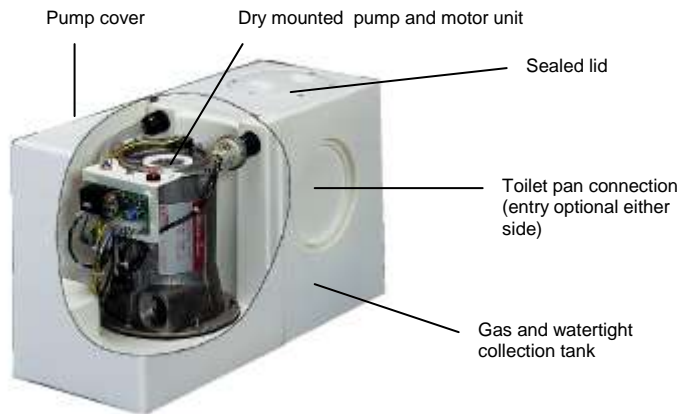


Figure 2 :

Cut-away view through the cover showing the dry mounted pump and motor unit, mounted on a sealed gas and water-tight collection tank, and the pan connection on the side of the tank.



Type Tested
Plumbing Safety
MP52 Spec 101 Cert 8139
Standards Australia

WARNING

Observe Local Water
Authority Requirements
For installation Restrictions

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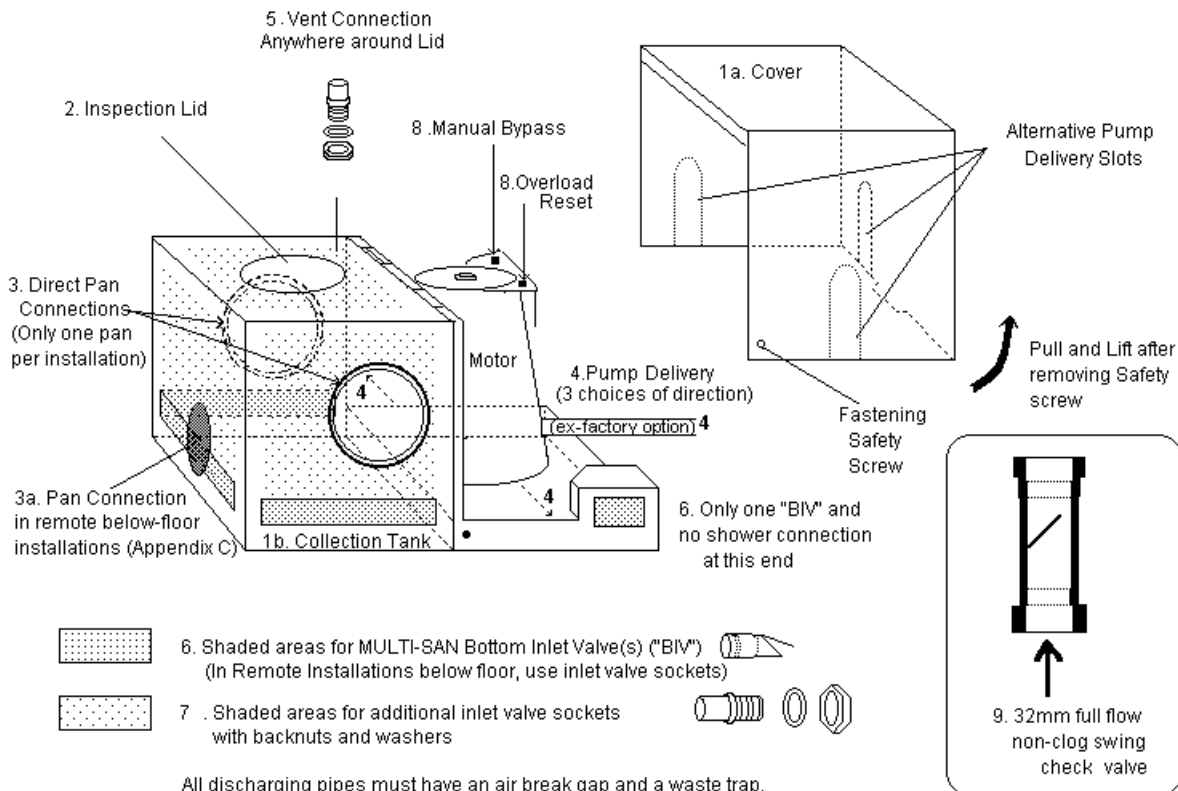
Limitations : We reserve the right to change these instructions and improve the product without prior notice.

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1. GENERAL VIEW & CONNECTIONS



- All discharging pipes must have an air break gap and a waste trap.
- 1a. **Cover** for dry mounted pump, motor and controls. Remove the fastening safety screw on the front panel, pull out the cover at the base and lift to remove.
 - 1b. **Collection Tank** - Fittings supplied may be shipped inside. Cut holes neatly and carefully. Do not subject to impacts, scratches, scouring or partial drilling that may weaken it.
 2. **Inspection lid** - Screw in with o-ring seal; turn anti-clockwise to open. Install upright with the inspection lid on top.
 3. **Pan connection** - Only one pan connection is allowed per installation.
The vitreous pan discharge can be connected directly either side of the tank by cutting out the required side and fitting the rubber gasket. Do not damage the raised lip and groove. Wet the gasket with soapy water before fitting to make fitting easier. If bends are unavoidable, keep to a minimum and use only swept inspection bends.
 - 3a. If the unit is not installed in the same room as the fixtures, it should be plumbed according to Appendix C with an adequate overflow outlet. Access must be provided for maintenance at all times.
 4. **Pump delivery** 32 mm BSPF -3 optional directions, alternative delivery positions to the factory standard can be specified when ordering. Use Class B or D or Class 4.5 PVC pressure pipe. Install a Mac union connector close to the pump, then the 32 mm compression swing check valve (9) and then we recommend installing an isolating valve to allow for future maintenance without disturbing the pipework. Securely strap and isolate the pipe from the building structure to prevent vibration or noise transmission during operation. Any horizontal section of the delivery pipework should always have a continuous rise towards the soil or waste pipe connection. It should never be level or have a fall.
 5. **Tank vent connection** - 32 mm valve socket is supplied inside the tank. Use 32 mm pipe to run the vent to a termination point in accordance with the Building and Plumbing Code. **Do not use an air admittance valve**, e.g. a "Hunter Valve".
 6. **MULTI-SAN Bottom Inlet Valve** - One valve is supplied inside the tank. Unless the unit is installed below the floor level, it can be used for any fixtures but must be used for a shower or a bath connection, not shared with any other connecting fixtures or appliances. If both are connected, each must have its own valve. The connection can be made with a hole-saw at either or both ends for a bath and only at the tank end for a shower, 80 mm centre height from the base. The inlet pipe must be braced to prevent the water pressure from dislocating the push-fit connection.
 7. **Additional inlet PVC valve socket connections** with back-nuts and washers can be installed anywhere on the four walls or the top of the collection tank for fixtures or appliances which have an overflow level higher than the unit. Allow room for the back-nut when cutting the hole. Check that the protruding pipe inside the tank does not damage or block fittings inside the tank.
 8. **MANUAL BYPASS button** under the cover on controller: the first is a red button which enables the motor to be started manually. Exercise extreme care. Call a service agent if the motor continues to trip.
 9. A Wallace 32 mm full flow non-clog **swing check valve** with compression fittings should be installed in the delivery pipe in a vertical position within one metre (pipe length) of the unit to stop backflow of liquid from the pipe back into the collection tank. The compression fittings can be used instead of a union for removing the pump if need be. The valve is supplied with the pump.
 10. **Isolation Valve**: A 32 mm full flow ball valve is supplied for installation after the 32 mm non-return valve.
 11. **Labels** warning against inappropriate discharges are supplied and should be affixed on the appropriate fixtures and appliances connected.

2. PRODUCT OVERVIEW

The MULTI-SAN pump is designed for the disposal of sewage, toilet paper and waste water. It is not designed as a sanitary waste disposal unit or a kitchen waste macerator unit, although it will pump the effluent from the latter. We recommend that you avoid pumping non-organic products such as condoms, sanitary pads or tampons. Pumping of these products will not damage the unit but may cause it to malfunction or jam.

This unit is a secondary system, it is not intended for use as the only means of effluent disposal from a dwelling, there must be an alternative gravity flow system available to the users of this pump. For complete household or commercial duties refer to our Saniboy or Sanistar range of packaged pump stations.

The WALLACE MULTI-SAN collects the gravity fed waste liquid into its collection tank. When a set water level is reached, the micro pressure switch inside the collection tank automatically activates the powerful quiet pump equipped with a cutter blade and a vortex cast iron impeller to deliver the effluent under pressure to the desired location through a 32 mm internal diameter pipe. Because of the small pipe size, the delivery can be run virtually anywhere and in any direction,

- through walls,
- through ceiling spaces,
- under floors,
- around and over obstacles.

The unit enables the installation of a variety of equipment where this was previously impossible due to economic constraints, physical limitations, or because there was no unit available with adequate performance. The MULTI-SAN has been developed to overcome these problems, including

- below sewer-line installations,
- where gravity fall is not possible,
- physical restrictions, e.g. concrete walls or concrete floors,
- where new pipes cannot be run under the floor, such as concrete floors,
- where large diameter 100 mm gravity lines are not appropriate for the location,
- and many other situations.

3. APPLICATIONS

The MULTI-SAN collects and automatically pumps away toilet waste water from the following and many other typical applications :

- basement toilet and bathroom facilities
- secondary amenities in factories built on concrete floor slabs
- relocated bathrooms where gravity fall to existing sewer connections is not possible
- re-developed apartment blocks in inner cities
- master bedroom ensuites
- executive bathrooms

In addition to the toilet pan (only one allowed per installation), you can connect one or a combination of the following additional fixtures or appliances :

- laundry tubs,
- domestic clothes washing machines,
- domestic sinks with or without waste disposal units,
- domestic dishwashing machines,
- bar facilities,
- bath, shower, vanity,
- air conditioning condensate and dehumidifier water
- a floor waste gully plumbed according to AS3500 and Appendix C, *Figure 7c*.

PROVIDED THAT

- in a multi-storey construction, they are all located on the same floor level as the MULTI-SAN,
- maximum temperatures in the collection tank are 40°C continuous and 60°C intermittent,
- no acids, solvents, paints, petroleum products, corrosive/abrasive liquids or excessive fats are discharged into the unit and
- the volume of water discharged into the unit from fixtures and/or appliances operating concurrently must not exceed 35 litres per minute. For larger flows, contact our sales engineer for advice.

Contact our office for advice :

- for general commercial applications,
- where there is a high quantity of fats being discharged,
- for printing, photographic or similar processing waste.

You must consult with your local plumbing and drainage inspector for a permit approval.

4. FEATURES AND BENEFITS

FEATURES	BENEFITS
Higher pump head (longer run & higher vertical height)	Pumps higher and further
Higher flow rate	Empties faster and accepts multiple discharges
Dry mounted motor and pumping unit	Easier to clean and service and more reliable
Heavy duty motor in hard alloy casing	Longer lasting
Heat and overload protected motor	Reduces risk of costly burnt-out motor
Robust cutter/slicer ahead of "Vortex" impeller	At high speed, cuts through most things
One piece collection tank	No weak joints
Multiple entry options into the tank	Can service many utilities from many directions
Pan entry either side of the tank	Caters for different room layouts
3 alternative directions for the delivery pipe	Flexible pipe-out

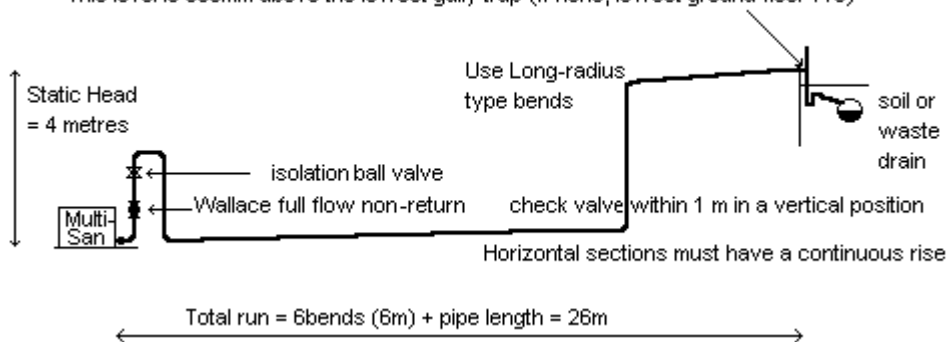
5. OVERALL BUILDING DESIGN AND PUMP HYDRAULIC CAPABILITY

To ensure that the MULTI-SAN is suitable, check your installation requirements against the dimensions and hydraulic capabilities of the unit.

- Ascertain that the combined inflows into the unit at any time do not exceed 35 litres /min
- Measure the overall height of the delivery pipework (from the bottom of the tank to the highest point in the delivery line, also referred to as Static Head).
- Measure the total run of all vertical and horizontal pipes from the pump to the sewer drain.
- Count the number of bends in the pipeline. Each is equivalent to 1 metre run.

Figure 4 : Example of hydraulic selection (equal to position B on Figure 5)

This level is 600mm above the lowest gully trap (if none, lowest ground floor WC)



Plot the intersection of metres static head and metres total run on the chart below (Figure 5).

The standard MULTI-SAN is suitable if the intersection falls within the areas A and B.

In area C the special high head version of the Wallace Multi-San will be required, refer to Wallace Pumps.

If the intersection point falls :-

- A.** below the lower line. Use standard Wallace Multi-San and 25 mm delivery pipework. 32 mm delivery pipe is optional.
 - B.** above the lower line and below the middle line. Use standard Wallace Multi-San and 32 mm delivery pipework.
 - C.** above the middle line and below the upper line. Use special high head Wallace Multi-San and 32 mm delivery pipework, refer to Wallace Pumps.
- Do not select the high head version for applications with less than 4 metres of static head.

Outside the chart, contact our office. We have domestic single phase 230 Volt waste water and sewage pumps for heads up to 26 metres and flows to 55,000 litres per hour.

SELECTION EXAMPLES

Point **A.** Static head = 3m.

Horizontal Pipe (6m) plus 5 x 90 bends (5m equivalent) = 11m total run of pipes.

Plot on the chart, the intersection is below the lower line.

WALLACE MULTI-SAN is suitable using 25 mm pipework after the 32 mm full flow non-clog non-return ball valve.

Point **B.** Static head = 4m.

Horizontal Pipe (20m) plus 6 x 90 bends (6m equivalent) = 26m total run of pipes.

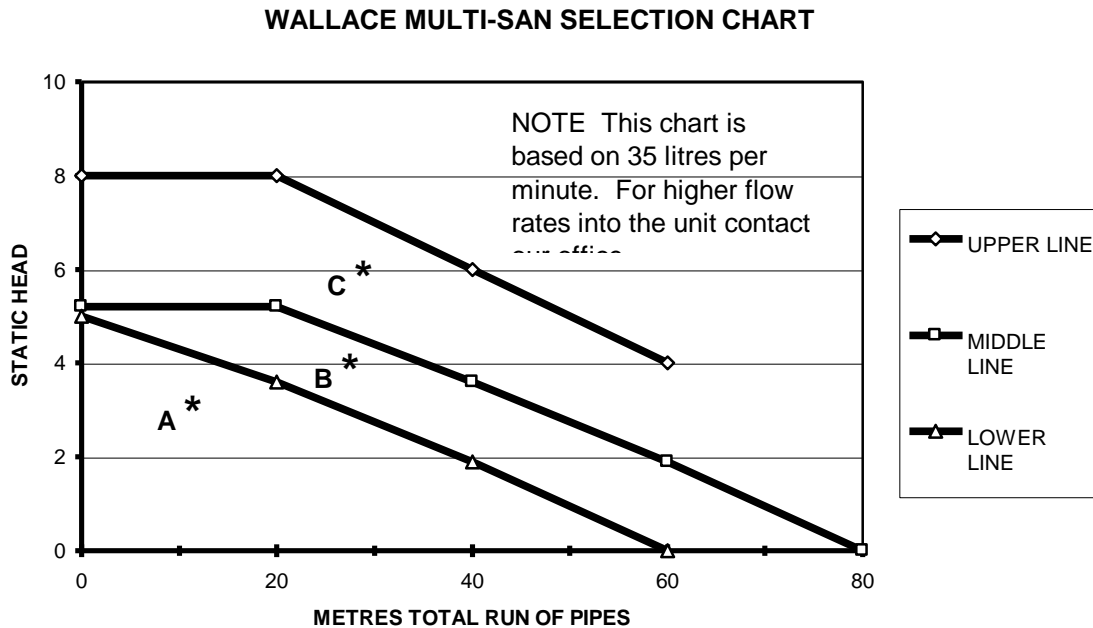
Plot on the chart, the intersection is above the LOWER line and below the middle line.

WALLACE MULTI-SAN is suitable using 32 mm pipework.

Point **C.** Static head = 6m.

Horizontal Run (20m) plus 6 x 90 bends (6m equivalent) = 26m total run of pipes.
 Plot on the chart, the intersection is above the middle line and below the upper line.
 WALLACE MULTI-SAN SPECIAL HIGH HEAD VERSION is suitable using 32 mm pipework.

Figure 5 : Hydraulic selection



NB: The above chart and figures are based on using Class B or D or 4.5 PVC pressure pipes and one WALLACE 32 mm full flow non-clog non-return ball check valve. This will ensure a minimum delivery flow of 35 litres per minute from the WALLACE MULTI-SAN. This is in excess of the highest output domestic washing machine that is currently known to be available. If you are uncertain, call your appliance supplier for the output flow for your particular unit.

6. WARNING : FOR YOUR SAFETY

The MULTI-SAN unit requires a power supply rating of 230 Volts 50 Hz single phase. This apparatus must be earthed. To ensure safe operation, check that the three pin power point is earthed and protected by a fuse or ELCB protection of an appropriate rating. Also check with your local power supply authority. Their requirements may be additional to and over-ride those listed above and in section 8.3.

When opening the cover or inspection lid, always switch the power off and ensure no liquid flows into the tank. Always re-install the cover and fasten the safety screw on the front panel to comply with electrical regulations.

To prevent shock or fire hazard, do not expose this unit to rain, any type of moisture, flooding or overflows.

The wires in the main connection plug are coloured in accordance with the following code :

Earth : Green/Yellow Neutral : Blue Phase : Brown

7. LIST OF FITTINGS SUPPLIED AND RECOMMENDED EXTRAS

7.1 Unpacking And Inspection (Some parts are delivered inside the tank, access via the inspection lid).

Your MULTI-SAN package should contain the following items

- 1 x WALLACE MULTI-SAN pump unit
- 1 x MULTI-SAN Bottom Inlet Valve for 40 mm inflow waste pipe size
- 1 x 32 mm PVC valve socket and back-nut with washer for the tank vent pipe
- 1 x toilet pan rubber seal
- 1 x 32 mm swing check valve with compression fittings
- 1 x 32 mm isolating ball valve

7.2 Options And Supplies

Optional extras where required

- 1 x soil and waste 80 mm inlet valve socket for remote below-floor toilet pan connection.

Additional 40 mm MULTI-SAN Bottom Inlet Valve (Part No 7360556).

Option 10.4.1 Alarm unit (SFMonitor)

Option 10.4.2 Alarm unit (SFMonitor) and solenoid valve (72218)

Additional materials you may require from your plumber/installer or local plumbing or building merchant :

- PVC valve sockets with back-nuts and washers to suit the appropriate pipework
- 32mm - 50 mm PVC drain waste pipe into the MULTI-SAN
- 32 mm PVC waste pipe and PVC cowl for the vent from the collection tank
- 25 or 32 mm (refer Figure 5) Class B or D or 4.5 PVC pressure pipe for the delivery pipe
- Any other size pipes as required
- PVC pipe, connector fittings and swept inspection bends for the toilet pan as required
- PVC fittings and cement as required (bends, sockets, traps and waste strainers etc.)
- PVC pipe "lubricant" (do not use petroleum based products)
- Thread tape - do not use hemp.
- Silicone sealant.

7.3 Tools Required for the installation

- Stanley knife, or jig saw or hacksaw (for cutting out delivery pipe slot in the cover)
- Half round file
- Emery paper strip
- 50 mm O.D. hole saw (for cutting out MULTI-SAN Bottom Inlet Valve hole)
- 42 mm O.D. hole saw (for cutting out tank vent pipe hole)
- Other sizes as required, holes cut must be no more than 3 mm larger than the OD of the valve socket thread.

8. GENERAL INSTALLATION ASPECTS AND ELECTRICAL DATA

8.1 General

1. Where a permit is required, it is recommended that the unit should be installed by a registered plumber and the power supply should be connected by a registered electrician. It is the responsibility of the installer to obtain all the necessary permits and consents. Ensure full compliance with all applicable local regulations. The owner or owner's agent must ensure that the MULTI-SAN is compatible with the existing or proposed plumbing system design.
2. The installation of the unit and non-return ball valve must comply with the following conditions:
 - they are easily accessible for servicing;
 - service fixtures and appliances located on the same floor level as the unit, each must have a waste trap installed; for below-floor installations, refer Appendix C.
 - are in a clean, dry, non-floodable position, protected from UV and on a permanently sturdy support;
 - design against overflow, flooding or unwarranted children interferences or excessive moisture;
 - protect from freezing of liquids in the unit and the pipework;
 - the tank is installed with the screwed inspection lid on top;
 - unless the unit is installed below the floor as in Appendix C, *Figure 7c*, install an individual MULTI-SAN Bottom Inlet Valve for the shower tray and one for the bath;
 - if the pan is not installed directly behind the unit, plumb according to Appendix C;
 - all the requirements in these instructions are met.
3. Cut holes carefully. Check via the inspection lid, the position of fittings inside the tank before drilling. For PVC valve sockets, allow room for the back-nut. Take care not to score or mark the tank as this may weaken it.
4. Modifications not described in this manual and without written authorisation by a Wallace representative will nullify the Wallace Pumps warranty and durability compliance.

8.2 Plumbing

1. The connection to the soil and waste drain system must be carried out in accordance with the Building and Plumbing Code. The connection of the unit's delivery pipe to a soil or waste pipe should be kept at least 0.5 metre distance from any other connection. Also it must not be connected in a section of the pipe which runs the risk of being flooded creating a back pressure down the pipework to the unit. The connection point is usually 600 mm above the lowest W.C. connection or the lowest gully trap. The connection of the delivery from the unit to a soil or waste pipe should be a swept inspection bend in the direction of flow of the soil or waste pipe.
2. Any horizontal section of the delivery pipework should always have a continuous rise towards the soil or waste pipe connection. It should never be level or have a fall. The pipework must be securely strapped and isolated from the building structure to prevent vibration and noise transmission.
3. Install only the supplied full flow non-clog swing check within one metre of the pump in a vertical position, below and close to the supplied isolating ball valve.

5. All pumped appliances, such as washing machines and dishwashers, must discharge via an approved waste system which includes an air gap and a trap.
6. Ensure that the 32 mm tank vent is installed in the top of the unit and that it extends full-bore to the external air (the minimum height must be 50mm above the overflow level of the highest fixture discharging into the WALLACE MULTI-SAN) or terminated elsewhere as described in the current Building & Plumbing regulations. **DO NOT use air admittance** venting devices as they do not let air out of the tank, eg: a "Hunter Valve".
7. It is important from a health and safety reason and for the protection of property, that an overflow relief pipe is plumbed and delivered to a safe and visible area in the event that the discharge flows into the MULTI-SAN exceed the pump hydraulic performance capability or caused by a mechanical failure or a pipe blockage. Pumped appliances and water supply can be safeguarded as per Section 10.4 (Overflow).

8.3 Electrical Connection

1. The WALLACE MULTI-SAN is fitted with a high quality 2900 rpm motor :

Current	:	5 amps maximum F.L.C.
Motor input	:	0.9 kW
Motor output	:	0.6 kW
Cable	:	1.5 metres of 3 core - supplied with the unit
Cable Plug	:	Standard 3 pin domestic earthed - supplied with the unit
Supply	:	1 phase 230 volts 50 Hz.

2. Overload protection (thermal / overload) : the unit has a built-in automatic motor overload. In the event of an overload trip, the pump will not restart automatically as it must be manually reset. Nevertheless always switch off the power in case the fault was not an overload trip. Then determine and eliminate the cause of the overload. Lift the cover and find the Reset button, a red needle button under a clear plastic bubble. Press the reset button down until it clicks and stays depressed.
3. Wiring connection : the electrical wiring connection type should preferably be the "Clipsal Permanent Connection Unit with Neon" type, or PDL 253N, or similar. The permanent connection should be fixed in a position where it cannot be reached by a person in a bath or shower or standing on a wet surface.
4. The unit requires a domestic 3 pin earthed single phase power supply. The appliance must **not** be connected to a conventional plug, socket or adaptor when installed in a bathroom, unless properly protected by an approved earth leakage circuit breaker or similar.
5. Refer Section 6 (Warning : for your safety) for additional electrical information.

Always refer to your local power supply authority for details of acceptable wiring, as their requirements over-ride the guidelines above.

Note : If you require a wiring diagram of the control panel, refer to our office or a service agent.

9. SPECIFIC INSTALLATION PROCEDURES

9.1 Pipework Sizes (Pipe sizes are nominal internal diameters)

PAN discharge pipe if direct pan connection	Not required
If remote connection below-floor as per Appendix C	80 mm Waste Pipe
DRAIN from shower and bath to the MULTI-SAN Bottom Inlet Valve(s)	32 - 50mm Waste Pipe
DRAIN from vanity, laundry, etc to the valve socket(s)	40 - 50mm Waste Pipe
DRAIN from kitchen sink to the valve socket	40 - 50mm Waste Pipe
DRAIN from Floor Waste Gully Trap plumbed as per Appendix C	50-100mm Waste Pipe
VENT from WALLACE MULTI-SAN to approved termination	32 mm or greater Waste Pipe
PUMP DELIVERY from MULTI-SAN to approved termination	25 / 32 mm PVC
	Class B / D /4.5 Pressure Pipe

Note : Choice of pipework sizes vary with state and local plumbing regulations.

9.2 Layout And Pipe-Out Options

Inlet valve sockets can be installed on the 4 walls as well as the top of the collection tank.

The vent pipe must be installed in the top of the tank, anywhere around the inspection lid.

The pump is supplied with the delivery outlet out of the end of the unit. If necessary, you can rotate the outlet to deliver out of either side. (Refer to Appendix A for this procedure).

If the MULTI-SAN is installed at the same floor level as the toilet pan and the shower tray/bath:

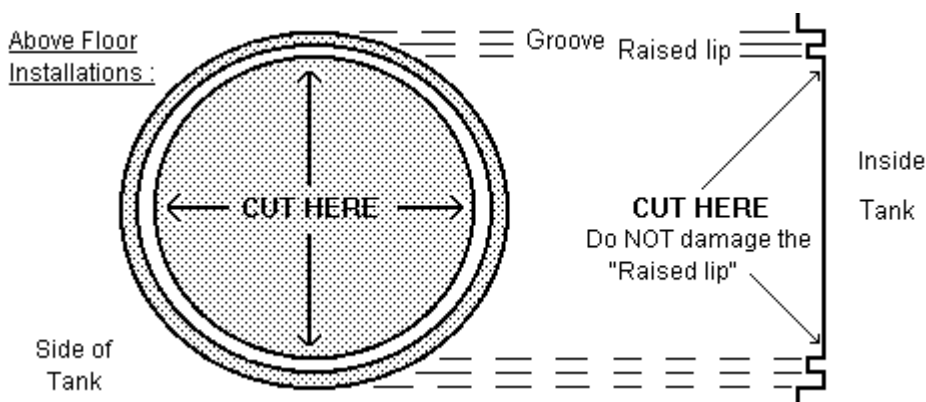
- the MULTI-SAN Bottom Inlet Valve can be installed at either end. (Note that at the pump end under the cover, only one valve can be installed in the raised section; no shower should be connected to this end).
 - the toilet pan can be installed in either side of the tank (only one pan is allowed).
- In a remote installation below floor level, refer to Appendix C, *Figure 7c*.

9.3 Positioning And Marking Out Place the unit in a dry weather protected position. At this stage, you must visualise where the pipes will run from fixtures to the unit, where the tank vent pipe and delivery pipe will run from the unit. Ensure that the whole system will integrate correctly in terms of gravity fall requirements before proceeding. Please ensure the unit will be freely accessible to allow for future servicing. Determine the side of the tank which the toilet pan will discharge into : MARK IT.

If the MULTI-SAN Bottom Inlet Valve is used, mark the centreline position(s) at 80 mm height above the base of the unit, and no closer than 45 mm centreline from the side of the unit. If a valve socket is used, allow room for the back-nut inside the tank to be at least 40 mm away from the fittings inside the tank and the corners of the tank and check that the pipe protrusion is clear of the vent tube and the control dip tube. View through the inspection lid before cutting the hole.

Decide on the position of the vent pipe in the top of the tank. Mark the centreline for a 42 mm O.D hole to take the 32 mm valve socket, allowing room for the fitment of the washer and back-nut inside the tank.

9.4 Cutting Out The Tank for the Pan Connection And Other Connections



Lay the unit on its side with the previously marked toilet pan inlet upwards. Using a Stanley knife or jig saw, cut a circular hole through the tank at the point indicated by the arrows and "CUT HERE" sign. Be careful to cut at the INSIDE corner and NOT TO DAMAGE the inner raised lip for fitting the pan seal.

Use a 42 mm OD hole saw to cut out the vent connection in the top of the tank and debur.

Use a 50 mm OD hole saw to cut out the MULTI-SAN Bottom Inlet Valve connection.

Use the appropriate OD hole saw to cut out other inlet valve socket connection(s).

The holes cut must be no more than 3 mm larger than the OD of the valve socket thread being fitted. Ensure the drill or saw does not penetrate excessively such that it would damage the fittings inside the tank.

9.5 Fitting :

Tank vent connection: Push the threaded end of the 32 mm valve socket through the hole in the top of the tank. Then via the inspection lid, firstly fit the washer and then the nut to the thread. Tighten the nut and socket firmly. If necessary a small bead of silicone sealant can be applied to the tank side of the washer and thread inside the tank.

Tank Inlet connections : Installation is the same as for the tank vent pipe valve socket.

Bottom Inlet Valve : Note there is a triangular impression on the outside of the valve. This must be on top once installed. Push the valve into the 80 mm centre height hole until its shoulder is hard up against the tank. Insert a finger in the valve and ensure it operates freely. The flap should lift and fall back freely onto its seat. Do NOT use sealant when installing the valve as it can interfere with the valve's operation.

Pan seal : (refer section 9.4) Lay the unit on its side with the cut-out pan hole to the top. Ensure the pan seal groove is clean of debris. Trial the pan seal into the groove. Remove and apply a small neat bead of silicone sealant to the bottom of the pan seal groove (approx. 3 mm diameter bead). DO NOT USE excessive sealant. Work the rubber seal into the groove until it is firmly home. The pan seal should finish flush, not proud of the tank.

9.6 Pipe-Out Sequence Fit the MULTI-SAN unit in the desired position. Fit-out the pipework first, then fit the cover.

9.7 Tank vent Pipe Cement the pipe to the valve socket. This pipe should be run full-bore to the external air at an approved termination point. **WARNING : Do not use air admittance devices** (e.g. "Hunter Valves").

9.8 Pump Delivery Pipe The pump outlet connection is 32 mm BSPF. Refer to Section 5 "Hydraulic capability" to determine the correct pipe size from this connection. Install the full flow non-clog swing check valve and isolation ball valve supplied.

9.9 Waste Pipes to the WALLACE MULTI-SAN

Connect the pipework between your sanitary fittings and the MULTI-SAN tank. Ensure that the minimum fall is maintained and that the installation complies with the Building and Plumbing Code including air breaks, strainers, traps, pipework sizes and lengths.

Bottom Inlet Valve : The 40 mm PVC pipe connection must be chamfered on the outside diameter and lubricated with PVC pipe "lubricant". Insert the pipe, 25 mm deep into the valve up to its internal shoulder.

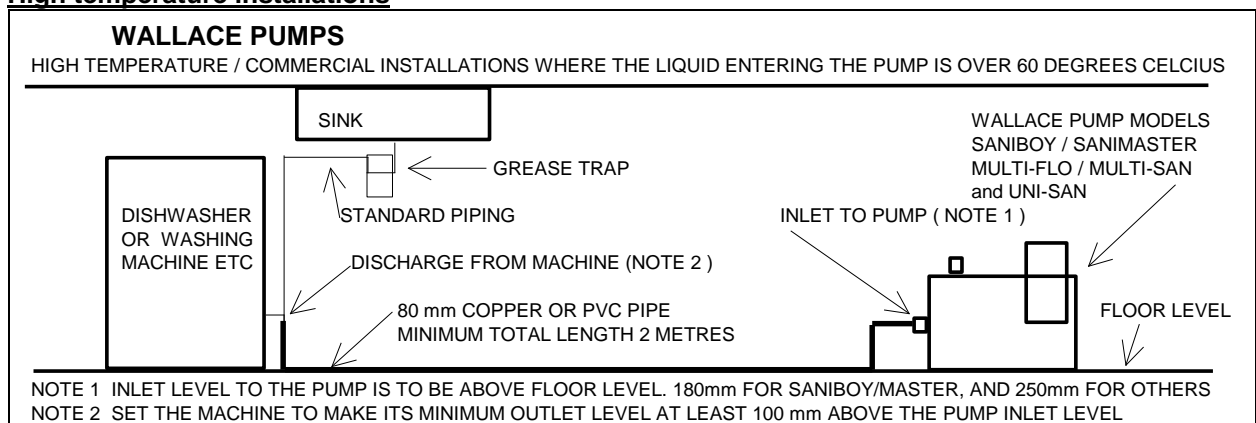
All inlets must have a waste trap connected. Vent the pipes where necessary.

9.10 Shower Tray or Bath Waste Height If the unit is not installed below the floor level, the absolute minimum height of the shower tray waste discharge point is 120 mm (recommend 160 mm) above the MULTI-SAN floor level. The final height is determined by starting from the MULTI-SAN Bottom Inlet Valve's 80 mm centreline and work back to the shower tray discharge point at the minimum pipe fall rate. Add the necessary height for the trap to give you the total height from the floor to the shower tray.

A shower waste pipe discharging into the unit must have its own un-shared MULTI-SAN Bottom Inlet Valve. Similarly a bath waste must have its own MULTI-SAN Bottom Inlet Valve. If the unit is installed below the floor level as in Appendix C, *Figure 7c*, a valve socket connection should be used instead of the MULTI-SAN Bottom Inlet Valve.



9.11 High temperature installations



If not practical talk to Wallace Pumps about cold water solenoid valve injection systems for dishwasher discharge.

9.12 Fitting The Cover Mark the pump delivery pipe centreline position on the cover and cut out with a hole saw to suit the position of the selected 32 mm delivery pipe position. Cut down from the edge of the hole to the base to create the slot necessary for installing and future removal of the cover. The pump cable power can be run through this slot.

Fasten the cover safety screw into the tank in the slot provided on the front panel to comply with electrical regulations.

9.13 Installing The Pan or The Discharge Pipe (using the Pan Seal, section 9.5)

Lubricate the pan seal with pipe "lubricant" from the centre hole to the seal first bead ring. Push the pipe into the tank to its final position. Complete the pan and cistern installation as per the manufacturer's instructions.

WARNING : Retracting the pan or the pipe can disturb the pan seal connection to the tank.

If the MULTI-SAN is not supported (eg Appendix B, Figure 7a) then the unit and the discharge pipe must be braced to guard against them pushing away from each other due to the internal water pressure.

9.14 Connection To The Power Supply Connect the unit to the power supply. Ensure that this complies with all the relevant requirements of the local power supply authority and any governing body. Switch on the power when ready.

9.15 Testing Run water into the unit. The motor and evacuation should start when the liquid is approximately 110 mm deep in the tank and should stop at approximately at 40 mm depth. If the operation does not appear to be correct, refer to the fault finding section (Appendix A).

10. CARE AND SERVICING OF YOUR UNIT

10.1 Normal Usage The MULTI-SAN pumping system is designed for the disposal of raw organic sewage, toilet paper and waste water. We recommend that you avoid pumping non-organic products such as condoms, sanitary pads or tampons. The unit is not designed as a kitchen waste disposal unit. When fault-finding, always switch the power off and take care to stay away from moving parts or electrical circuits when switching the power on or when pressing the manual bypass or reset buttons.

Do not discharge acids, solvents, paints, thinners, petroleum products, corrosive/abrasive liquids, excessive fats or any other products that may be harmful to the unit into the tank. A grease trap should be installed in commercial applications and should be cleaned regularly.

10.2 External cleaning The external surface should be cleaned with a damp cloth, and dishwashing detergent if required. Do not use abrasive liquids or pads, solvents or petroleum products as these may scour or damage the surface.

10.3 Cleansing If you experience fat or sludge build-up problems in the tank, we recommend that you regularly clean the unit with a solution of household detergent. Switch off the power supply. Mix a solution normally used for vinyl floor cleaning. Pour into the tank through the inspection lid and leave to stand for 20 minutes. Switch on again and flush with clean water. If required, the inside of the tank can be cleaned manually via the inspection lid.

10.4 Overflow Where a discharge flows into the MULTI-SAN, adequate precautions must be taken to ensure that no undesirable overflow can occur. You should not repeat flushing if the pump does not start.

Three alternative protection systems can be installed :

1. An audible alarm can be fitted that is activated when the level of fluid inside the pump reaches a high level. This alarm can also be wired to notify a Building Management System. To install this option please refer to SFMonitor instruction manual.

2. In addition, drainage into the MULTI- SAN unit can be isolated by means of a fail closed solenoid valve on the water supply to any fitting that discharges into the unit. This valve, if activated either by a power failure or a separate high level switch in the MULTI- SAN as described in the previous paragraph, would turn off the localised water supply to fixtures and appliances discharging into the unit. To install this option please refer to SFMonitor instruction manual.

3. If appropriate, a suitable size overflow pipe for emergencies can be plumbed from the MULTI-SAN to a suitable delivery point.

10.5 Protect the unit from weather or flooding The MULTI-SAN is an electrical appliance and therefore is subject to damage if the electrical components are exposed to water or excessive moisture. Always secure the cover lid in place and ensure any overflow / accidental leakage can drain away from the unit. To ensure safe operation, ensure that the power supply is earthed and protected by a fuse or ELCB protection of an appropriate rating.

10.6 Protect from frost If the installation is exposed to frost conditions, adequate precautions must be taken to prevent against freezing of liquids inside the MUTI-SAN and all the pipework into and out of the unit. Icing may result in permanent damage to the unit. Never pour hot water over the unit and do not use anti-freeze agents.

10.7 Regular Servicing The interior of the collection tank should be kept clean. The intervals between cleaning will be determined by the type of usage. Regular inspection will determine the required frequency. Inspection and access is via the screw-on lid on top of the tank.

Ensure isolation and disconnection of the power supply to the pump before and whilst carrying out any servicing work on the unit. Also ensure no liquid will flow into it during servicing.

10.8 Modifications or Repairs Wallace Pumps does not warrant for any damage to the unit or any other property caused by any un-authorised modifications/repairs in contravention with the Company's instructions or by use of materials or fittings not supplied by Wallace Pumps. Where a claim arises, we suggest you contact the installer for rectification.

11. WARRANTY AND LIMITATIONS

The purchaser and / or installer must ensure full compliance with all applicable regulations.

Wallace Pumps does not warrant for any damage to the unit or any other property caused by poor quality installation, workmanship or installations in contravention with the Company's instructions, or by failure of materials or fittings not supplied by the Company. The Company does not accept any liability resulting from flooding or from safety breaches, the user must take the necessary steps to guard against such occurrences.

Subject to the above and where the unit has been installed, operated and maintained in accordance with local plumbing and electrical regulations and this instruction manual, Wallace Pumps warrants the unit for a period of 1 year from the date of purchase, against defects in materials and workmanship on the basis of return to our distributor's or service agent's premises, freight paid. Contact Wallace Pumps for a list of names and addresses.

The units meet the NZ building code durability requirement of 5 years provided they are installed in an easily accessible position, provided normal maintenance is carried out on parts subject to wear and tear and provided all installation and operating instructions in this manual are followed.

If you require further assistance, call a sales engineer at any of our offices or distributing representative.

We thank you for your custom.

APPENDIX A : Fault Finding Chart

NOTE In the warranty period, any work not described in this manual must be carried out by Wallace Pumps Service Agents, otherwise your warranty and the product's durability period will be invalidated.

ALWAYS ensure isolation and disconnection of the power supply to the pump before and whilst carrying out any servicing work on the unit. Also ensure no liquid will flow into it during servicing.

	<u>OCCURRENCE</u>	<u>POSSIBLE CAUSE</u>	<u>REMEDY</u>
1.	-Motor runs continuously without clearing the liquid.	-Level switch operated by water level remains in the ON position because : a. pipework is blocked; or b. pump is blocked; or c. tank is blocked; or d. delivery hose is kinked.	-Check that the pipework is clear. -Turn off the power and check that the pump can rotate freely in both directions by turning the shaft at the top end of the motor with a screwdriver. -If blocked, clear the obstruction. -PVC Pipes are recommended.
2.	-Pump runs but delivers little or no liquid.	-Delivery head (combination of vertical & horizontal pipe lengths, pipe bends and size) is too high for the unit.	-Check the system against the pump operating parameters. Refer Section 5 (Building design). -Check that the pump is not pumping the water level down too low. (Refer fault 9 below).
3.	- Pump starts but takes over 10 seconds to reduce the liquid level in the tank (as seen through the inspection lid).	-Delivery line is partially blocked or too small. -Pump is not venting. -Tank is not venting -Inflow rate too high	-Unblock and/or change the pipework to the minimum ID. Refer Section 5 (Hydraulic capability). -Visually check that the tank vent pipe is clear ; or by releasing the pipe from the tank and blow down it; or by removing it and flush clean. -Check that the tank vent functions correctly: . Liquid should rise in the vent tube until the pump starts. . When the pump runs, little or no liquid should flow through the vent tube. Remove the inspection lid to check the return flow into the tank. . When the pump stops, the liquid in the vent tube should draw down to empty. -Refer fault 9 below. -Call our office for details of changes to achieve higher head and pump delivery flow rates.

ALWAYS ensure isolation and disconnection of the power supply to the pump before and whilst carrying out any servicing work on the unit. Also ensure no liquid will flow into it during servicing.

4.	Motor does not start at all.	<ul style="list-style-type: none"> -Not connected to power supply. -Power cut/fuse blown. -Thermal load activated. -Faulty liquid level switch. 	<ul style="list-style-type: none"> -Connect power as detailed Section 8.3. -Restore electrical supply. -Determine and remove the cause of the overload trip. Reset the overload button and test run. If the overload does not start the motor, leave the unit to cool down for 15 minutes, check fault No 5 and retry. If the overload re-occurs, switch the power off and contact a Wallace Service Agent. -Check the level switch setting and operation. Refer fault 9 below.
5.	Motor hums/buzzes but does not appear to run.	<ul style="list-style-type: none"> -Foreign body blocking the impeller. -Electrical fault. -Faulty liquid level switch. 	<ul style="list-style-type: none"> -Remove obstruction from the pump. Check freedom of operation as per fault 1 above. -If there is no obstruction and the rotor turns freely, then the motor is possibly faulty. Refer to a service agent. -Check the level switch.
6.	After evacuation the motor engages several times before stopping, or restarts at intervals without any liquid discharged into the collection tank.	<ul style="list-style-type: none"> -Water is leaking / back flowing into the unit from the delivery pipe, triggering the motor to re-start. -Non-return valve does not close properly. -No non-return valve in the delivery line. 	<ul style="list-style-type: none"> -Check that the non-return valve is clear. This should be the supplied 32 mm FULL FLOW NON-CLOG SWING CHECK VALVE installed in a vertical section of pipe as close as possible (within 1 metre) of the pump. -Remove the obstruction. -Install 32 mm full flow non-clog non-return swing check valve supplied.
7.	Pump runs and makes a rattling noise.	Solid object is in the tank or in the pump and will not pass through the delivery.	Clear the obstruction.
8.	Unit smells.	<ul style="list-style-type: none"> -Inadequate water leading to clogged up/dirty unit. -No water seal on waste pipes to the unit. 	<ul style="list-style-type: none"> -Flush unit out with a bleach solution and clean water. -Plumb waste water traps.
9.	Pump does not start or stop at the correct levels of liquid in the tank. (This should be ON at 110 mm from the bottom and OFF at 40 mm from the bottom of the tank).	<ul style="list-style-type: none"> -Tank not correctly vented. -Faulty liquid level switch -Liquid level dip tube or pressure switch blocked 	<ul style="list-style-type: none"> -Unscrew tank inspection lid to allow venting. Switch power on and operate pump. If operation is correct, switch off power and check tank vent is clear or fit vent according to Section 8.2. Replace inspection lid. -Replace the level switch. -Remove obstruction and recheck operation.

ALWAYS ensure isolation and disconnection of the power supply to the pump before and whilst carrying out any servicing work on the unit. Also ensure no liquid will flow into it during servicing.

1 0.	Liquid leaks from the unit.	<ul style="list-style-type: none"> -Loose pipework connection. -Faulty liquid level switch. -Mechanical seal fault (leakage between motor and pump). -Leakage from the seal gasket between the pump and the tank. 	<ul style="list-style-type: none"> -Tighten the pipework connections. -Check and replace if required. -Check and replace if necessary. -Check the condition of the seal. Replace if necessary. If necessary, run a small bead of neutral cure silicone sealant rated at 100 degrees Celsius on both sides of the gasket. -Check and tighten the 6 nuts to the tank. -Check there is adequate pressure on the seal. Do NOT overtighten.
1 1.	<p>Waste water builds up in the shower tray.</p> <p>Also see section 9.</p>	<ul style="list-style-type: none"> -Air lock because connection is made into the small raised tank chamber under the cover. -Power is off. -Overload trip. -Inflows exceeding pump capacity. -Blockage in the pipework. Shower pipe also has other pipes connected to it. -Pump malfunctioning. -Overflow pipe (if applicable) is blocked. 	<ul style="list-style-type: none"> -Reconnect the pipe into the walls of the collection tank at other end. -Check power supply and fuse. -Lift cover and press Reset button. If unsure or if the motor trips again, call a service agent. -Check system against pump operating parameters. Refer Section 5 (Building Design). Temporarily, turn off discharging appliance. -Find and remove blockage. - Separate the shower waste pipe. -Refer above faults and rectify. -Unblock the overflow pipe.

APPENDIX B : Remote Installations Same Level

Figure 7 a :

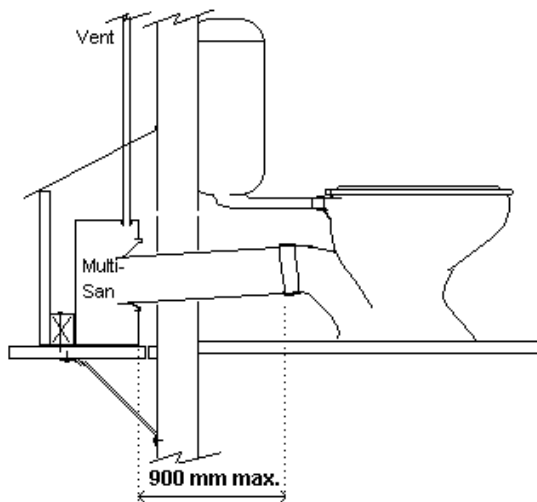
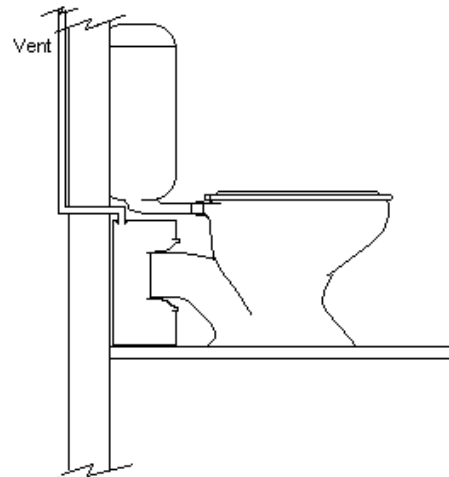


Figure 7 b :



OTHER REQUIREMENTS :

Ground surface water must not flood the unit.
 Avoid condensation / excessive moisture.
 Take adequate precautions against freezing of liquids inside the MULTI-SAN and in all pipework in and out of the unit.

Easy access for maintenance.

Permanent sturdy support - do not use particle board.
 House to keep dry, away from UV, and human interference.
 Provide drainage in the support in case of overflow out of the unit / leaks in the housing cover.
 Brace with timber block or strap unit to wall.

Vent the tank to appropriate height required by Building & Plumbing Code; **do not use air admittance valve.**

Electrical connection must be earthed and protected by ELCB

IF SHOWER AND/OR BATH CONNECTED

Install unshared MULTI-SAN Bottom Inlet Valve and waste trap for each.

OVERFLOW PROTECTION

Our warranty excludes any damage caused by an overflow. Because of the danger of flooding caused by continued flushing / discharge in excess of capacity or by a malfunction of the pump, particularly as the operation of the quiet motor outside the room cannot be heard by the occupants or visitors, you should review the safeguards described in section 10.4.

Unit installed directly behind P Pan :

An installation inside is simpler. No need for pipe or connector fittings. If required, an accessible cupboard would effectively hide the unit and pipework.

IF SHOWER AND/OR BATH CONNECTED

Install unshared Bottom Inlet Valve for each.

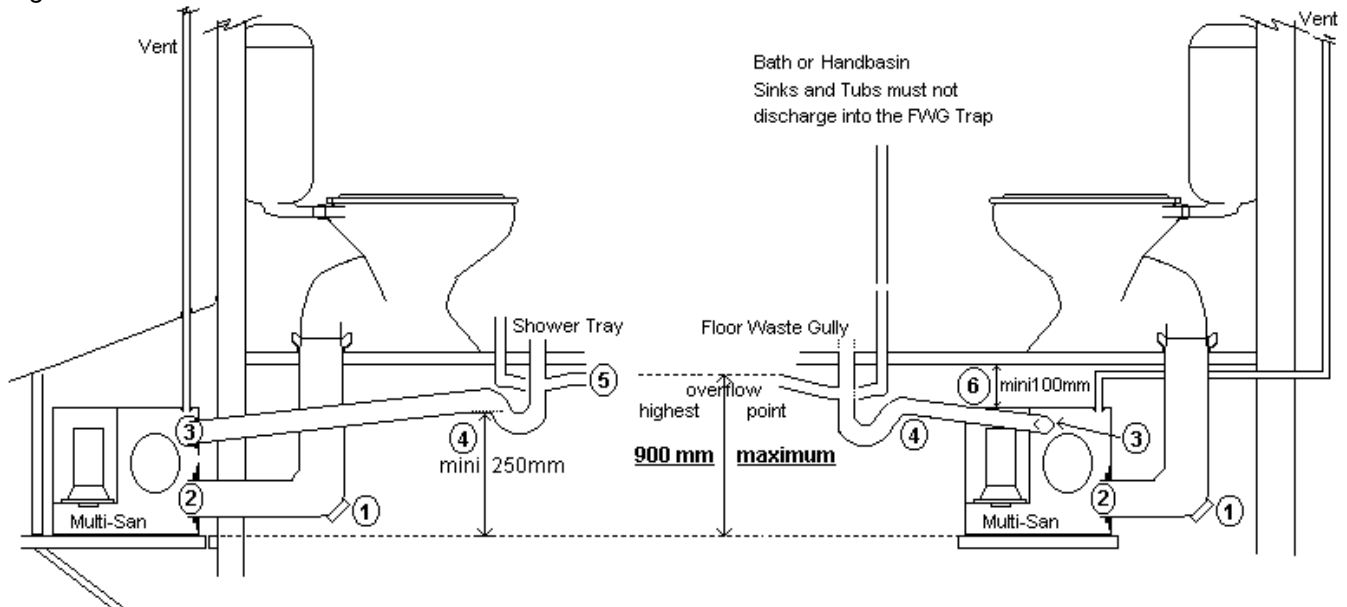
OVERFLOW PROTECTION

The risk of flooding is reduced because the operation of the unit is audible and warning labels are affixed to the fixtures.

Continued...

APPENDIX C : Remote Installations Different Level

Figure 7 c :



These remote installations must have the pan vented as normally required for a gravity flow installation, this vent is not shown on these diagrams.

OTHER REQUIREMENTS :

The same requirements as for *Figure 7 a* and as follows:-

1 - note the layout requirements for

Pan seal connection : MUST use a swept inspection bend (1) and source from Wallace Pumps a 80mm socket valve complete with nut and washer (2) to fit inside the tank. Do not use the push fit rubber gasket seal side entry connection. The socket valve connection must be made ONLY on the END wall of the tank, 90mm diameter hole, Maximum 65 mm centreline from the base of the tank, and Minimum 65mm centreline from the corners.

Floor Waste Gully Trap or Shower Tray connection (3) should be in the top half of any of the three walls or on the top around the inspection lid and the trap water level (4) should be a minimum of 250mm from the base of the tank. Use a valve socket instead of a MULTI-SAN Bottom Inlet Valve.

2 - provide for **Easy Access (6)** to the location, the inspection lid and the cover.

3 - Do not forget to install the non-return non-clog swing check ball valve in a vertical position in the delivery line within a metre of the pump. The connections on this valve can be easily loosened to allow easy removal of the pump.

4 - An **OVERFLOW PIPE (5) should be installed** : to maintain the maximum 900mm height measured from the base of the tank to the lowest overflow point of all the fixtures or appliances discharging into the MULTI-SAN. The maximum recommended height protects the unit against overpressurisation. To avoid any damage to property caused by an accidental overflow or a malfunction of the pump, the overflow should be delivered to a suitable and visible location outside. Keep the line straight or use long radius type bends and keep the line unobstructed.

If a shower tray or a floor waste gully trap or any fixture or appliance with an overflow level lower than the rim of the toilet pan is/are connected :

we recommend an overflow pipe below the floor and can be simply achieved by installing a suitable diameter 88 degree pipe junction (DN 50 mm or bigger) above the waste trap of the fixture with the lowest overflow level. The overflow pipe should after a short rise fall away and the delivery line should be kept straight or use long radius type bends.

If no fixtures and other appliances with an overflow level lower than that of a toilet pan are connected :

An overflow pipe is optional and the maximum height of 900 mm is measured from the bottom of the tank to the rim of the toilet pan bowl. If no overflow pipe is plumbed, review the options described in section 10.4 .