

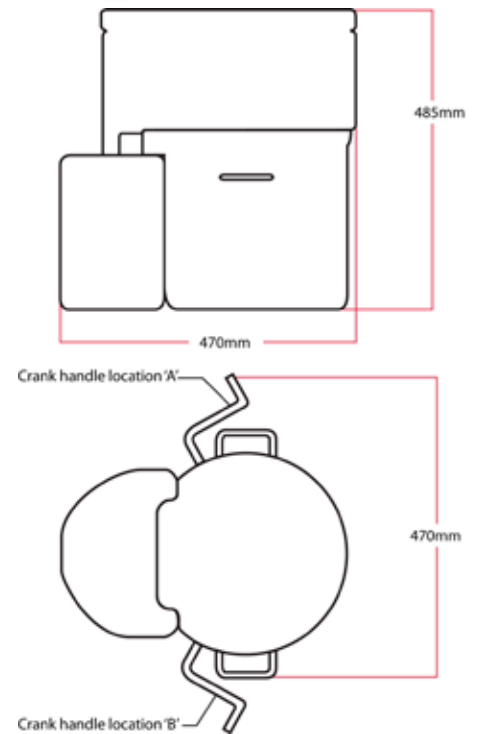


## Contents

- Solids base tank/agitator & handle
- Vented bowl & seat/lid assembly
- Liquids tank & cap
- 12 Volt exhaust fan assembly
- 1800mm x 50mm Ventilation Hose
- 1 Storage Lid
- 50 bowl liners
- 1 Peat Moss Pack
- 1 Enzyme Sachet
- 2 Stainless Steel floor mounting brackets & screws
- Assembly and operating instructions



## Installation Instructions



### Securing the Air Head to the floor.

1. Level base as necessary prior to installation. Unit must be level or leaning slightly forward.
2. Check fit of toilet in desired position. Ensure seat is not obstructed in the up position and that all doors and cupboards will open with toilet in place. Ensure that the crank handle can rotate 360°.
3. Ensure that the liquid tank is at least supported at the rear of the tank.
4. Place the 'solids tank' and 'holding brackets' in position. Mark position of brackets. Remove 'solids tank' and secure brackets with screws supplied.
5. Replace 'solids tank' and secure in place by tightening thumb screws.
6. Position 'seat & bowl' on top of 'solids tank'. Push down firmly, lock into position and tighten thumb screws.

### Ventilation Installation.

1. Locate suitable place for fan vent. Shorter hose with less bends is best. The Air Head vent may be installed in place of an existing 'out' vent as the Air Head vent will continue to provide air flow in its place. If a new vent hole is required, drill 57mm diameter hole (2.25 inches) in roof or cabin bulk. If installing in a boat, ensure that the outlet is high enough to prevent water from splashing into vent. To prevent possibility of musty odors or moisture from entering cabin, avoid installing vent immediately forward of intake vent or hatch.
2. Bed all matting surfaces with silicone or high quality chalk. Loosely secure fan assembly on inside with screws provided. Allow to cure of 24 hours before tightening screws completely.

3. Choose left or right hand outlet in Airhead solids tank. To plug other outlet, apply a small amount of silicone sealant to interior end of intake vent (green foam) and lock into remaining hole.
4. Prime small end of grey cuff and retaining sleeve with plumber's PVC primer.
5. Slide cuff through the desired hole in upper section of toilet.
6. Glue inside of retaining sleeve with plumber's PVC glue and adhere pieces together. When glue has dried, roll on O-Ring so that it falls into the groove adjacent to toilet body. The cuff should be just loose enough to **allow it to turn in its seat**, allowing easy threading of hose without twisting.
5. Screw hose into vent adapter and toilet exhaust.
6. Install exterior vent or cover (not included).  
Passive vents utilizing wind to create a vacuum are recommended. Other options are Nicro Day/Night Solar Vent, where the Air Head Dry Toilet fan is integrated with a switch and used occasionally. A solar panel, (minimum 5 watts), may also be added to counter effect the battery drain caused by the Air Head Dry Toilet fan.
7. Turn off power, attach fan leads to any convenient 12 volt junction and test. If fan does not run, reverse wires.

## Start-up

1. Always be sure organic desiccant (peat moss or coir peat) is moist prior to start. Place the compressed brick in a bucket with 4.5 litres of warm water to reconstitute. It will swell to approx fill a 9 litre bucket.
2. Transfer the reconstituted core peat into the 'solids tank'. Agitator should bury last use with a half rotation. Add more coir peat if necessary.
3. The peat will gradually absorb the liquid from each use and the fan will carry water vapor out through the vent. Depending on frequency of use, the humidity in the tank will vary from very dry to moist, but should never be waterlogged. Moist conditions are ideal for the decomposition of solids into humus. Full decomposition of toilet paper and liners will take a few months if kept moist.
4. Add ½ to ¾ cup of sugar to 'liquid tank' to eliminate any odor that may occur.
5. Optional: Add 2 tablespoons of 'enzyme' along with a cup of warm water to 'solids tank' to aid composting when you start up a fresh tank. Additional Enzyme is available from A Better Way To Go or from hardware stores under 'compost starter'. Follow instructions on packet.

### **Note!**

Moisture should be maintained so that papers are shredded as agitator is turned. If papers wrap around agitator, add a small amount of water. Product should be crumbly - not soup like. Too much moisture will create odorous 'swamp-like' conditions and should be avoided.

The Air Head Dry Toilet can be used dry. Solids will dehydrate to an unnoticeable state. However, paper will not decompose without moisture. Moist conditions will also mask exhaust odors better. The best scenario for occasional use is a wet/dry cycle where contents will dry during nonuse and water can be added during occupancy.

Solid material should resemble damp 'crumbly' earth. Mixture should not look 'muddy'.

## Usage

### Liquids

Close 'trap door'.

Women use the Air Head Dry Toilet in the same way as a standard toilet, except there is nothing to flush.

Men may stand, but should avoid targeting trap door directly to avoid splatter. Best results are achieved when seated.

### Solids

1. With 'trap door' closed, place liner in bowl over trap.
2. Provide donation in the seated position.
3. Depress black lever to open trap door. Gravity carries liner & donation into 'solids tank'.
4. Place toilet paper in the hole.
5. Close 'trap door'.
6. Turn crank to agitate contents.

### **Solids - alternative option without bowl liner.**

1. Open trap door and provide donation in the seated position.

Carry out steps 4 - 6 as above.

Agitate the unit as necessary in order to assist in the elimination of any odor in exhaust vent or to compact tank contents. Rotate agitator 1/2 turn to 'bury' each fresh use.

# Emptying

## Emptying the solids tank at sea:

When outside coastal waters restriction zone, simply upend over the side.

## Emptying the solids tank on land:

Empty your Air Head Dry Toilet when the 'solids tank' is no more than 5 cms (2 inches) from the top. Due to the composting nature of the Air Head Dry Toilet, you may find that although your toilet was near full, upon returning after a few weeks, the contents has shrunk. So don't be too anxious to perform this task.

1. Remove Air Head Dry Toilet bowl section. Cap the 'solids tank' with lid provided.
2. Remove 'solids tank' from floor brackets.
3. Now follow either Option 1 or Option 2:

### Option 1:

You may empty the contents into a composting toilet, found in many national parks and some campsites.

**Contents must not be emptied into inland waterways or within marine national parks.**

### Option 2:

1. Retain product inside the Air Head Dry Toilet 'solids tank' for a minimum of three summer months – longer in cooler climates. You may transfer contents to a secondary container such as a plastic bag for the 3 month term and reinstate the 'solids tank' for continued use. Alternatively you can purchase a second 'solids tank' and simply switch tanks for rotation.
2. Add water to facilitate biological action and decomposition of paper. Contents should be consistently damp but not waterlogged.
3. Leave a gap for air to enter and escape – do not seal container.
4. After 3 months minimum retention time, trench into soil in areas designated for ornamentals rather than food producing plants. Follow regulations which may vary depending upon location.
5. Use common sense hygiene practices such as washing hands afterwards.
6. Reassemble. The 'solids tank' is designed to leave some peat in the very bottom of the tank. There is no need to scrape the tank out since there are (most likely) active bacteria present in the bottom ready to take on that job they were designed for.

## Emptying the liquid tank

Empty 'liquid tank' when level is still within view of window. If the level is higher than the window, liquid will spill when disconnecting. If this occurs, remove screws from upper portion of Air Head Dry Toilet and lift so spout clears bottle. To disconnect 'liquid tank', pull forward so that the bottle will drop away from hole.

Liquids can be emptied into a standard toilet. If at sea, you can upend over the side.

**Contents must not be emptied into inland waterways or within marine national parks.**

Immediately reconnect bottle to Air Head Dry Toilet to avoid contamination from compost by flying insects.

## Cleaning and maintenance

*Important:* The fan screen should be cleaned upon emptying or at least once per season to maintain proper air flow. Unscrew the hose from the unit and repeat at the upper end. Sweep the screen with a dry cotton bud until clear.

Be sure trap door is closed when cleaning bowl with chemicals since they will interfere with the aerobic action inside the 'solids tank'. It is not necessary to clean the 'solids tank' after emptying. In fact it is best not to, so the aerobic process is not interrupted. Also, leaving some organic material inside the tank will help the process to start again without the need to add Enzyme. Clean bowl and Air Head Dry Toilet exterior with non-chlorine hard surface cleaner. A solution of vinegar and water 1:1 ratio will dissolve urine in bowl and inside 'liquid tank'. Wipe interior of bowl with non-abrasive polish such as 'Armor all'. Tip: You may easily wash down the bowl periodically if your boat has a hand held shower head.

To reduce odors in 'liquid tank', sanitise the interior by filling with a vinegar solution, shake occasionally and allow to sit until inner walls are clean. Empty tank and fill with boiling water. Loosely cap and allow to cool. Add ½ to ¾ cup sugar before use.

## Things to remember

When in doubt, add more peat moss. The more you use the unit, the more moisture in the 'solids tank'. Adding peat has a drying effect.

The condition of the solid matter should resemble damp 'crumbly' earth. The mixture should not look muddy or smell 'swampy'.

In rough waters or when the boat is heeling, it is best for everyone to sit. This is easier, safer and will maximise the efficiency of the separation system.

Avoid contamination with flying insects:

1. Keep the lid closed
2. Replace liquid bottle immediately upon emptying
3. Keep 'solids tank' capped
4. Avoid depositing raw fruit or vegetables.

# Sanitation and safety

1. Health risks are minimal when healthy people are using the Air Head Dry Toilet because diseases cannot magically appear in human matter. Therefore one cannot catch any disease from one's own solid or liquid matter that one did not already have.
2. In order to be exposed to diseases from human matter in the 'solids tank'
  - a) a person carrying disease would have had to use your toilet;
  - b) pathogens, many of which do not survive for long outside the human body, would have to survive in an alien environment until c);
  - c) you would have to contact that infected section with broken skin or somehow ingest that section through hand to mouth transmission.
3. The hardest of disease causing pathogens are highly resistant to chemical treatments. To put this in perspective, you can expect that even standard municipal sanitation systems will not kill everything. Besides, due to mutations, organisms are known to become resistant to chemicals. This also means that pathogens possibly occurring in the Air Head Dry Toilet are also likely in chemically treated holding tanks or portable toilets.
4. "All fecal micro organisms, including enteric viruses and roundworm eggs, will die if the temperature exceeds 46°C for one week." Franceys, qtd. In Jenkins. The hardest of disease causing pathogens will begin

to die at 40°C, however, the lower the temperature, the lower the destruction rate.

At many altitudes we can reasonably expect temperatures above 40°C in a closed boat during the summer months. But since we don't expect our customers to perform ongoing temperature monitoring of the cabin, we've devised a process having multiple safety factors which should be followed. Still temperatures in the Air Head Dry Toilet have been recorded at 51°C and above at 20°C ambient with use of provided enzyme.

This information suggests that temperature alone will destroy pathogens. But in a biological decomposition chamber like the Air Head Dry Toilet there is also bacterial action working at lower temperatures to destroy pathogens. This is why we recommend that the tank contents are held for 3 months prior to emptying and suggest longer periods to allow microorganisms as much time as possible to work. Urine is generally regarded as sterile when it is expelled from the body.

#### *References:*

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NSF, Standard no.41 for wastewater recycle/reuse and water conservation devices, National Sanitation Foundation, Ann Arbor, MI, December 1980.

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Centre for Disease Control telephone inquiry.



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