

INNOVATION RV

iRV Revolution

Automatic Composting Toilet

Operations Manual

Self-contained • Waterless • Automated agitator & thermostatic heating

For use in caravans, motorhomes, off-grid dwellings,

tiny homes and cabins

Please read this manual carefully before installation and first use.

Retain for future reference.



1. Introduction

The iRV Revolution composting toilet is a self-contained, waterless composting toilet designed for caravans, motorhomes, off-grid living, tiny homes and cabins. It processes human waste through aerobic decomposition, converting it into safe, nutrient-rich compost over time.

Key features include an automated stirring mechanism (agitator) for even aeration and mixing, and a thermostatically controlled heating system that maintains optimal decomposition temperatures. This manual provides step-by-step instructions for safe and effective operation, including substrate (bulking material) options and temperature guidelines.

Important Note

*Always follow local regulations for the composting and disposal of human waste. The finished compost should be aged for at least **24 hours** prior to emptying of the cassette.*

2. Safety Instructions

- **Hygiene:** Wash hands thoroughly after use or any maintenance. Always wear gloves when handling compost or the solids chamber.
- **Ventilation:** Ensure the exhaust fan is operational and correctly vented outdoors at all times. Proper ventilation prevents odour build-up, condensation and accumulation of CO₂.
- **Electrical:** The unit requires a dedicated 12 V DC 15 A circuit to power the fan, heater and agitator. Do not operate the toilet without power, or if any power cords or connectors are damaged.
- **Children & Pets:** Keep the toilet out of reach of young children and pets. The unit is not child-proof.
- **Capacity / Overloading:** Do not exceed the rated capacity of 4-6 persons (based on 1-2 uses per person per day). Overloading reduces composting efficiency and may cause odours or incomplete processing.
- **Fire Risk:** The heater is thermostatically controlled. Nevertheless, monitor the unit for any unusual heat and keep flammable materials well clear of the toilet.

3. Components Overview

- **Solids Chamber** — Main composting bin fitted with counter-rotating agitator rods that mix and aerate the contents.
- **Liquids Container** — Separate urine diverter. The liquids outlet should be plumbed into sullage hose, a black-water tank (or grey-water tank where local regulations permit).
- **Agitator Handle / Control** — Stainless-steel front lever used to open the solids container. The system automatically stirs after each use.
- **Heater Element** — Bottom-mounted heater pad that activates when the chamber temperature falls below approximately 5 C.
- **Exhaust Fan** — Continuous or demand-controlled fan that provides odour control and assists with dehumidification of the solids chamber.
- **Thermometer Probe** — Digital display showing both chamber temperature and heater temperature for easy monitoring.

4. Substrate (Bulking Material)

Substrates (also called bulking agents) are carbon-rich, absorbent materials added after each use. They absorb excess moisture, help balance the carbon-to-nitrogen ratio, control odours and promote aeration within the solids chamber.

Recommended substrates

The most commonly used and readily available substrates are:

- Peat moss
- Wood shavings (untreated)

- Coconut coir

These materials can be purchased at most supermarkets, garden centres or hardware stores.

Quantity & when to add

Initially add approximately 4 dry cups (or 3 large handfuls) of substrate to the solids chamber:

- Before first use (initial charge) 1 Cup of water can be added to keep dust down and help substrate settle
- After each full clean-out / emptying of the cassette

5. Initial Setup

1. Confirm that the unit is securely mounted and level in its intended location.
2. Connect the 12 V DC power supply to a correctly rated 15 A circuit. Verify polarity and that the fan, heater and agitator all receive power.
3. Install the exhaust venting so that air is discharged outdoors. Ensure the duct run is as short and straight as practical and is protected from weather ingress.
4. Plumb the liquids outlet to a black-water (or approved grey-water) tank in accordance with local regulations.
5. Add the initial charge of substrate (approximately 4 dry cups / 3 large handfuls) to the empty solids chamber.
6. Close the chamber, confirm the digital temperature display is functioning, and allow the system to stabilise.

6. Daily Operation

The iRV Revolution is designed for simple, low-maintenance daily use:

- The automatic agitator will stir the solids chamber after each use, promoting even mixing and aeration. The stainless front lever is used when access to the solids container is required. This will automatically stir substrate when closed.
- Toilet paper may be deposited in the solids chamber; it will break down with the compost. Avoid excessive quantities of non-compostable materials.
- Please use unscented and preferably an eco or easily broken down toilet paper as it will help with decomposition. Stronger 3 ply style toilet paper may not breakdown as quickly.
- Monitor the digital temperature display periodically. The heater pad will automatically activate if the chamber temperature drops below approximately 5 C.
- The tank and heater temps are located on top of toilet
- The toilet has a " DRY " button near LED indicator lights, this can be used to manually heat and stir substrate in case of excess moisture or odour. This is a backup only and not intended for daily use, the toilet is automatic and this is an override.

7. Temperature Guidelines

Optimal aerobic composting occurs within a moderate temperature range. The thermostatically controlled heater assists in cooler climates by preventing the process from stalling.

- The heater element activates automatically when the chamber temperature falls below approximately 5 C.
- The digital display allows you to monitor both chamber temperature and heater status.
- In very cold conditions, ensure continuous power is available so the heater and fan can maintain favourable conditions inside the solids chamber.

8. Maintenance & Emptying

Routine checks

- Confirm the exhaust fan is running and that the vent path remains clear.
- Periodically inspect the liquids plumbing for free flow and absence of leaks.
- Keep the exterior and seat area clean with a mild, non-abrasive cleaner. Avoid harsh chemicals that could harm the composting process.

Emptying the solids cassette

When the solids chamber approaches capacity approximately 1/2 to 2/3rds of cassette (guided by usage and visual inspection), empty the cassette as follows:

1. Wear gloves and observe good hygiene practice.
2. Allow the finished compost to age for a minimum of 24 hours before emptying, as noted on the important advisory at the beginning of this manual.
3. Use the stainless front lever to open and remove the solids container.
4. Deposit the compost in accordance with local regulations. Finished compost that has been properly aged may be suitable for non-food ornamental planting in some jurisdictions; always verify local rules.
5. Clean the chamber if required, then add a fresh charge of substrate before returning the cassette to service.

9. Troubleshooting

Symptom	Possible Cause	Suggested Action
Odour present	Insufficient substrate, fan not running, or vent blocked, high moisture.	Add more substrate; verify fan operation and clear vent path
Chamber too wet	Excess liquid or insufficient bulking agent	Add dry substrate; check urine diverter is functioning
Heater not activating	No power, or temperature above set point	Confirm 12 V supply and circuit integrity; check display reading
Agitator not stirring	Power interruption or mechanical obstruction	Check power; inspect for foreign objects (power off first)
Slow decomposition	Low temperature, poor aeration or high moisture	Ensure heater/fan are working; add carbon-rich substrate

10. Regulatory & Environmental Notes

Composting of human waste is subject to local, state/territory and national regulations. It is the owner's responsibility to ensure that installation, operation and disposal practices comply with all applicable rules. When in doubt, contact your local environmental health authority.

The iRV Revolution is intended to produce a finished compost that, after appropriate ageing, may be handled according to those regulations. Never dispose of incompletely processed material in a manner that could contaminate waterways or food-growing areas.

Thank you for choosing the iRV Revolution.

Proper use of substrate, continuous ventilation and adherence to the temperature and capacity guidelines will ensure reliable, odour-free performance for years of off-grid comfort.