



# CARAVAN SELF-CONTAINMENT GUIDELINES

These suggested guidelines have been produced by NZ Lifestyle Camping Ltd to assist vehicle inspectors and installers to meet the new Plumbers, Gasfitters and Drainlayers Board ([Self-contained Vehicles](#)) Regulations 2023 and the associated ([Motor Vehicle Inspections](#)) Notice 2023

## Differences between vehicle builds

*There can be significant differences between European and UK constructed Caravans and those produced in Australia, New Zealand or America. For self-containment purposes the major differences are:*

- *European and UK caravans and campervans mostly use the smaller push fit 28mm (or 19mm) pipe and hose as opposed to standard 32mm or 40mm plumbing fittings, used by NZ and Aus Manufacturers.*
- *Most European and UK caravans have portable water and waste tanks as opposed to fixed onboard tanks.*
- *UK and European caravans were designed with 2 waste water outlets care should be taken when converting to a single outlet to avoid backflow of waste water into the shower.*

## Minimum Capacities for Self-containment under the 2023 regulations

**There are no minimum capacities for fresh water or waste under the regulations**, however the capacities should be sufficient to meet the occupants' needs for a period of three days. It is acknowledged that many travellers also carry bottled water and prefer to use this. The Vehicle inspector must be satisfied that the capacity is sufficient before 'passing' the vehicle.

Capacities must be recorded on the test sheet which is reviewed by the certifying authority.

## Caravan Toilets

The regulations (Clause 17) require fitted or removable, black water tanks. A removable blackwater holding tank can be a cassette or for waterless toilets a chamber. Incinerating toilets are also now available and being installed in NZ caravans.

The vast majority of modern caravans sold in NZ have Thetford or Dometic Toilets which are fitted as a unit with a separate removable cassette that is accessible through the outside locker. It is important to recognise that the toilet and black water tanks are separate components of the toilet system and are treated as such. It is acceptable practice to have multiple, interchangeable, cassettes or chambers to store the toilet waste material. Secondary storage containers should be vented and not be kept inside the accommodation area of the vehicle, but preferably in an outside locker.

Some older caravans may only have a portable camping toilet. To be certified under the legislation toilets must be permanently fixed and useable inside the vehicle. Common solutions to enable smaller camping toilets to be used include the Fix-A-Potty bracket (can be mounted on a slide) or Black Moa Toilet.

Under Clause 20 of the regulations the pipes connecting sanitary appliances and fixtures to wastewater storage tanks must have means to limit the escape of foul air and noxious gases to the interior of the vehicle. (This applies to all waste water tanks). For commercial cassette toilets and separate fixed black water tanks there is usually a slide valve between the components. For many toilets (including waterless toilets) a 'Sog' fan ventilation system or other odour extraction system can be added to remove odours. Waterless toilets are becoming more popular and again these must have a method to limit the escape of foul air into the vehicle interior. Just closing a lid is not acceptable. Odour reducing materials or a manufacturer designed fan extraction system is an option.

**NZLC Comment: As standard toilet cassettes have only 17 to 18 litres toilet capacity we recommend carrying a second cassette for 4 or more occupants.**

## Fresh Water System

Only storage containers and hoses that are approved / designed for drinking water can be used. The water storage containers must be either stored in a way that they are protected from sunlight or be opaque (not see through) to prevent the growth of bacteria and algae etc. Fresh water hoses or pipe cannot be clear or transparent this is a legal requirement under the regulations. Suitable fresh water hose (usually blue or white) can be purchased from caravan outlets, plumber's merchants and some hardware stores.

- Do not use standard garden hoses for filling water tanks, only approved drinking water hoses. Garden hoses may may taint the water leaving an unpleasant taste.
- Many older, classic caravans do not have approved freshwater hose from the fill inlet to the tank and the require replacement before a self-containment certificate can be issued.
- The water inlet must be capped or sealed
- If the system is pressurised check that there are no leaks and that the water flows as intended.

**If a breather vent is fitted to the Fresh water tank a device / method of some kind is required to prevent the entry of birds or vermin. The image to the right shows a simple option for this using a washing machine, inlet hose, mesh filter. Nylon mesh over the end of the vent hose with cable ties will also suffice. However, a small diameter e.g 10 to 15 mm vent hose may be considered adequate without an additional mesh or grill device.**



## Some waste water tank fixing options for caravans

1. Secured fresh and grey tanks under the floor (or under cabinets / beds if there is no shower).
2. Portable rollaway tanks, one each for fresh and grey.
3. Connected bank of 150mm PVC pipes with sealed caps, usually the length of the van under the floor.

*If tanks are secured under the vehicle they must be adequately supported with metal straps or an underslung frame or cradle. These should be secured where possible as a balanced unit, usually in front of and behind the caravan wheels / axle, to keep the caravan balanced and eliminate "speed wobbles", when towing. Be aware of brake cables when locating tanks*

*These should be secured where possible as a balanced unit, usually secured underfloor in front of and behind the caravan wheels / axle, to keep the caravan balanced and eliminate "speed wobbles", when towing. Be aware of brake cables when locating tanks.*

The waste water tank vent pipe/hose must rise above the waste tank at a height that prevents spillage and exit to the outside of the caravan. For underfloor, mounted tanks a vent tube can be installed through the floor and up inside a cupboard or locker and exit to the outside through a vent cover or alternatively looping back down through the floor. If portable rollaway tanks are used the vent must rise above the waste tank to a level that prevents any overflow spillage. A 500mm height vent pipe will generally suffice.

## Waste water pipes

Under Clause 20 of the regulations the pipes connecting sanitary appliances and fixtures to wastewater storage tanks must have means to limit the escape of foul air and noxious gases to the interior of the vehicle. The odour can be limited in multiple ways including the uses of smell traps, s-bend or u-bend pipes and hoses, slide valves, seals or plugs and forced air, fan extraction. With caravans and motorhomes, the use of water seals or smell traps is recommended.

There is a large range of flexible hose and pipe available through RV sales centres, plumbing and hardware merchants. A smooth bore product is recommended.

Standard sizes are 25, 32 and 40mm for NZ and Australian fittings and 28 and 19mm for European campers. *Please refer to the section on UK Caravans for more specific information relating to these models.*

In testing the vehicle check that there are no leaks and that pipes and hoses are in a suitable condition to last for 4 years.

Remember, the onboard waste tanks are a sealed system. If the grey water tank is totally full and you empty the sink, it may backflow into the shower (if installed) or not drain from the sink! Many owners install electronic tank monitors.



*Note: The following guidelines are more relevant to European caravans.*

*The image to the right shows a modification to a UK caravan with an underfloor waste tank added behind the axle where the spare tyre is usually mounted.*

## Limiting waste odour from entering the vehicle

The self-containment regulations require that there is a method or device to limit the odour from waste tanks (include black water tanks from entering the vehicle. This could include a fan extraction system or for smaller vehicle with only a sink, a well sealing plug.

Ideally caravan wastewater plumbing should include water seals or smell traps between the fixture e.g. sink, and the waste tank. While it is standard practice to have a separate water seal on the pipes from each fitting in some case a single water seal or smell trap below the junction of the waste pipes will suffice. Underfloor fitted waste hose, e.g. from the shower may have a small u bend in line which holds a small amount of water.

All joints and connections must be sealed to prevent leaks, including transporting portable waste containers.

Some options for a waste water seal are

- Standard "S" Bend.
- HepVo valve available from plumbing stockists – 32 or 40 mm diameter pipe fitting. Can be installed in either vertical or horizontal position. Commonly used in shower waste lines where ground clearance low.
- A loose loop of flexible tube that forms a suitable water seal.
- European engineered smell traps/siphons.
- An in line valve.

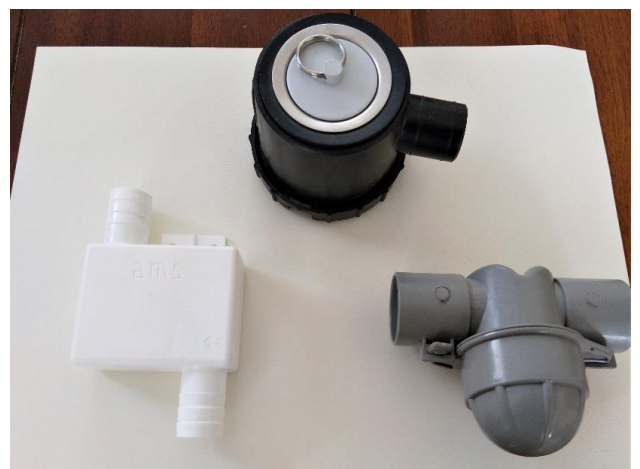


Whereas most UK caravans and motorhomes use the grey 28mm fittings, the black sink waste outlet shown includes a water seal in its design and is commonly used in European motorhomes and caravans. (When fitting these items an additional S or P trap is not required)

The black sink waste outlet with smell trap can be purchased through Vantage RV in Silverdale plus some other suppliers.



Hepvo



**NOTE:** Flexible hose should not be used in horizontal plumbing waste lines as it may sag unless it is tied to the structure. All water seals must be as close as possible to the sanitary fitting outlet.

## Sourcing fittings for self-containment

Most plumbing, irrigation and agricultural suppliers have a wide range of on/off valves, hose tail connectors, dust caps, sealable couplings, and flexible grey waste hose for those sizes. If buying valves and camlock fittings, tail connectors etcetera in bulk we suggest checking out Irrigation Express and the Water Sprinkler Shop for trade prices and next day delivery.

NZLC recommends the TWSS Male/female valve from the water sprinkler shop. This is an easy to turn valve which does not cease up like many others. <https://thewatersprinklershop.co.nz/products/bvmf03?variant=32266562076739>

## European Caravans - Shower Waste and backflow.

The standard waste outlet configuration for European caravans has two waste evacuation outlets, one being for the shower and one being for the handbasin and sink. This avoids any backflow of any remaining waste water in the pipes from sink and handbasin entering the shower. However, where the two wastewater pipes are combined to a single exit and fitting of the outlet valve backflow can occur, particularly to a rear shower, when travelling or parked with the caravan rear down lower than the front.

Backflow into the shower, with Euro caravans, can be avoided or reduced by adding a secondary inline valve in the shower waste outlet close to the side of the vehicle, or by ensuring the shower outlet pipe is higher than the sink and handbasin pipes (see image above) before the exit valve. E.g., placing 30cm block between underfloor and sink / handbasin waste pipes so that these sit lower than the shower waste pipe and the waste water cannot enter up into the shower waste pipe.

*This image shows a standard kit for bringing a UK caravan or motorhome up the required standard under the regulations. Note the configuration of the Tee connection/junction which allows for the shower pipe to run higher.*

An option for joining 2 waste pipes on European caravans onto one outlet and motorhomes to 1 outlet is to use a Y connector plus a 45 degree and 60 degree connector. These give greater flexibility.

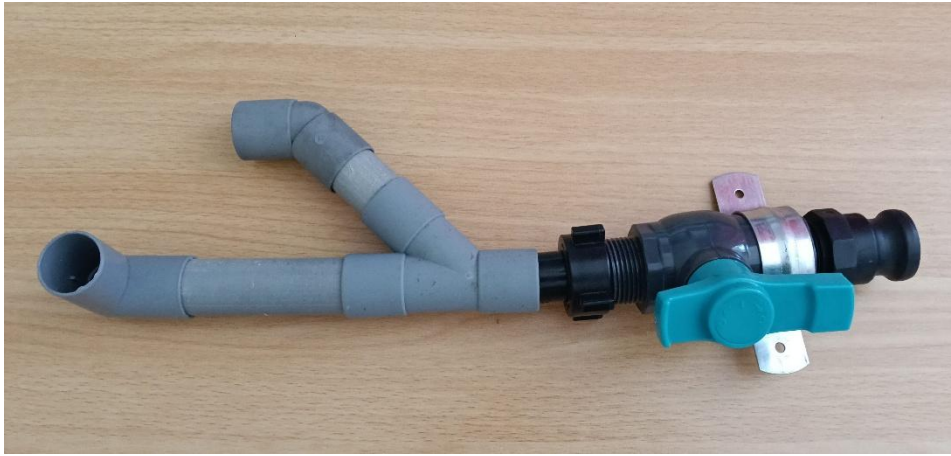


Another option is to adapt and fit a Hepvo valve in the shower waste pipe. This may be installed horizontally. Where a Hepvo valve is used the vent pipe must rise above the height of the handbasin or sink to be effective.

## Waste water tank evacuation - From vehicle

The vehicle waste water exit or drain point should be as high as possible from ground level, and not at the extreme front or back of the van where it is likely to be damaged on undulating ground. Some UK caravans have 2 drain outlets at the rear. In such cases it is recommended to reroute the waste pipes to drain out the side of the vehicle behind the wheels.





A suitable length hose is required fitted with the correct size hose tail connection to attach to the vehicle outlet. This will ensure a leak free discharge from your on/ off valve into a dump station or portable external waste tanks. While 3 metres is the standard this is not a requirement under the PGDB regulations.

**NZLC Comment:** Often a 3metre waste hose is too long and can create problems with spillage when coiling. An option is to have 2 separate and shorter hoses that can be joined with male and female fittings to make a longer evacuation hose if needed.

**The waste hose must be stored in a sealed container when not on the vehicle (preferably in an outside locker. A length of larger diameter plastic pipe mounted to the vehicle can make a good storage container for the hose.**

## Rollaway / Portable Tanks

*All rollaway tanks (full or empty) must be adequately secured when in transit including additional cassettes and water containers.*

With rollaway or portable wastewater tanks the requirements of waste traps and minimum capacities of freshwater and wastewater remain the same as fixed tanks. Multiple portable tanks can be used to meet these requirements. At all times the waste water system must be a sealed system.



*The images above show connection kits for rollaway tanks that you can purchase or easily set up yourself.*

**To achieve a sealed system, all connections between the van and tanks (regardless of whether the tank is fixed or portable) must be leak proof.**

When using a portable tank there should be a valve at the discharge point of the vehicle, with a cap fitted, when disconnected from the portable tank. The tank should be fitted to the discharge valve with a flexible hose, with all connections leak proof. The length of the hose needs to be as short as practicable to ensure no spillage when disconnecting.

Extra tank caps can be modified (drilling a hole), one to take the inlet pipe and the other the vent pipe, allowing the second set of caps to be put on for travel or wheeling to dump point for emptying. Another option is to use BSP 20/25/32 mm threaded connectors (silicone or lock nuts recommended) with screw on caps or camlock fittings to ensure the containers are sealed when they are removed. These fittings are all available from irrigation stockists or from NZ Lifestyle Camping

**The rollaway tank must be able to be removed for emptying without spillage. The connecting hose and vent need to be stored in a separate locker or container when not in use to prevent contamination. All portable tanks should be securely stored so they cannot move when travelling.**