



Why not camp in winter?

The UK summer can be brief and unpredictable to rely on the summer months for capturing great outdoor experiences. Modern caravans and motorhomes have good heating and insulation systems so why not extend your camping year into the winter months? It also makes sense to put your expensive asset to good use rather than having it sitting in a storage compound.

The basics

The two essentials for winter camping are to be able to keep warm and for your water supply and drainage not to freeze up. Even with the latest highly-specified and well-insulated unit you can experience problems if you do not take some simple precautions. This data sheet shows how to deal with these and other potential problems of winter camping.

Fresh water supply

External water tanks are at risk from freezing in winter even when well insulated, unless you can provide with a heat source. A basic requirement for use of an Aquaroll or other external portable water tank in the depths of winter is an insulated jacket that also covers the vulnerable inlet pipe to the caravan.



An insulation jacket may help protect your water supply from the frost

Using such a jacket for temperatures close to zero degrees Celsius (0C) is helpful but left overnight with temperatures well below zero you are likely to find the contents at least partially frozen. Once frozen, normal daytime winter temperatures may mean your water supply takes an inordinate time to thaw. Hence it is best to ensure your external tank is drained during the coldest periods, such as overnight when sub-zero temperatures are forecast. While a drained external tank should come to no harm when left outside, your submersible pump should be brought inside as it may retain some water in the pump body and be at risk of frost damage.

A small container of water can be kept inside overnight for essential usage like making a cup of tea first thing in the morning. If you regularly caravan in sub-zero temperatures, it is worth considering fitting a winter kit such as the [Truma Ultraflow](#). This enables an Ultraflow external water inlet to be blanked off and the inlet to be transferred to an internal wall. Thus you could fit the water inlet on the bathroom wall with an Aquaroll located in the shower.

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External underslung tanks on motorhomes should be well insulated and there are after-market products available to achieve this where not originally specified. 12V electrical tank heaters are also available that should ensure the water is maintained at a temperature above freezing point over longer periods. Such heaters may flatten your leisure battery if left on for long periods so they are best used when you have an electric hook-up.

Some units come with an automatic frost control valve in place of the simple manual drain valve to protect your hot water boiler in cold weather. This valve operates at about 4C, when it dumps the contents of your water boiler and usually the contents of your water tank as well. Although this provides frost protection to your expensive water boiler if you forget to drain down after a winter outing, it is annoying to lose your water supply while you are occupying your unit. With earlier automatic frost control valves and current ones with an electrical connection to the boiler, keeping the hot water boiler switched on at its lowest setting should prevent dumping. For current valves without a wired heating element, keep the boiler on to protect the boiler and ensure there is sufficient heating in the locker where the valve is situated to prevent dumping.

Waste water system

Maintaining your fresh water supply is important but you will still have a problem if the waste water system freezes. Once in an external tank, given consistent freezing temperatures, waste water will eventually freeze despite good tank insulation and you will be unable to drain the tank.



Draining to a bucket can help keep your waste tank from freezing up. It's easy to dispose of frozen waste from a bucket

For motorhomes it is better to leave the waste drain valve open and drain direct into a bucket where the frozen waste can be dealt with more easily. Similarly with a caravan, use a bucket rather than risk having your Wastemaster or similar tank freezing up.

Motorhome external waste tanks can be insulated and heaters provided - as with the fresh water tank - but also with the proviso of needing a good electrical power supply to be practical.

Pipe that run to the waste outlet or tank are also vulnerable to freezing if they are not set with a good gradient for their full length. Typically a pipe will be routed under or over an obstruction like an axle and water will linger and be liable to freeze, even with pipe insulation. If your unit is vulnerable to this try pouring a small amount of salt water solution down the drain before going to bed. Salt water has a lower freezing temperature than fresh water and this may keep the pipe free. Alternatively, if this becomes a real problem it can be worth fitting an extra drain outlet in the problem length of pipe.

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Keeping warm



Only propane gas (red cylinders) will carry on working while winter camping

Bottled gas

It is essential to note of the two types of bottled LPG (liquid petroleum gas) available, only propane will keep providing gas at temperatures close to and below 0C. LPG needs heat to "boil" to produce gas and while butane ceases gassing off as the temperature approaches zero, propane will continue to gas off down to -40C.

Safety First

It is also important to remember the potential of gas appliances to cause harm when you are concentrating on minimising the influx of cold air into your unit. So remember:

- The factory installed drop-out vents in the floor at the back of appliances are essential safety features in the case of a gas leak.
- Use of a gas oven and hob uses up oxygen and can create carbon monoxide so opening a window or roof light when cooking is essential. Never use a gas hob as an additional source of heating.
- In a modern caravan all gas appliances, other than the cooker, will have balanced flues or systems that provide an external air intake and also vent the waste gases externally. These intakes and exhausts should be checked to ensure they do not become blocked with snow.
- A carbon monoxide alarm is highly recommended.
- Ensure your unit has an annual service with an [Approved Workshop](#), which will include a check on the safety of your gas system by a qualified technician.



If you are using gas for heating and therefore using a lot of gas, you may be tempted to consider the use of larger-than-normal cylinders. Although this is a more economical way of buying gas, the preferred size from the safety aspect is to use cylinders that fit into your unit's gas locker. The Club has a [policy on the use of external gas cylinders](#), which may be found on the Club website. Remember when moving to and from site always ensure gas cylinders are transported securely in an upright position and the valves are shut off for travel.

Electric hook-up

Staying on a site with an electric hook-up can be very useful in winter to help conserve your gas supply and maintain your battery power, but there are limitations to hook-ups. Ideally, for winter use you should look for a 16A hook-up so you can use your heater and some ancillary equipment. A 2kW heater will use just over half of this capacity so be clear what your other appliances consume to avoid tripping your unit system or, even worse, the supply bollard. Refer to Data Sheet [Electricity for Campers and Caravanners](#) to check the notional power requirements of typical caravan and motorhome appliances. Check with the campsite manager how secure the supply is during busy, very cold spells. Sometimes you will be asked to go easy on your use of electrical power to prevent overloading of the campsite system at peak periods.

Space heating

The type of heating system will make a big difference to how comfortable you are. A single space heater without any distribution system can lead to cold areas within the unit.

A heating system where heat is distributed by blown air or circulating hot water should give greater comfort and help eliminate cold spots that are liable to cause areas of condensation. The downside of blown air or circulating hot water systems is the electrical power need to operate them, which will deplete your battery over time if you are not on a hook-up.

If going out for the day it is often better for economy and comfort to keep your heating on at a low setting rather than switch off only to put it on at full blast on your return. If you do not have a low wattage electric heater built into your unit or thermostatic controls it may be worth taking a small oil-filled electric radiator that can be safely left on to keep the unit reasonably warm and above freezing while you are out in the day or during the night.

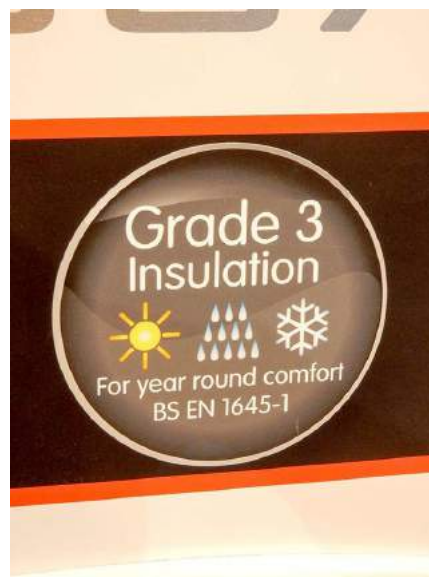
Some of the latest caravans come with heating controls that can be adjusted remotely via a mobile phone, which can help greatly if planning a day out.

The right unit and insulation

From about 1999 most caravans and coachbuilt motorhomes have been constructed to a grading system set by European Standard. If you intend to camp in winter check the unit you are buying complies with Grade 3 insulation to EN1645 (caravans) or EN1646 (motorhomes) standard. Older units were largely built to Grade 2 insulation standard. Grade 3 insulation does not mean you will not experience problems in winter, but it does mean it will be easier to maintain the water supply and easier (and generally cheaper) to keep warm.

Often manufacturers will also state their product is fully winterised and indicate the likes of tanks and water pipes are insulated. The term winterised is not a strict specification so ask for details of what is included. For cold weather camping, an on board fresh water tank is ideal to ensure a frost-free water supply, for example.

The vast majority of caravans and motorhomes have double-glazed acrylic windows, which provide a good degree of insulation although some condensation will form on them under severe conditions. The acrylic used in these windows exhibits hygroscopic properties, which means under certain conditions moist air will pass through the material. Hence when the air inside is warm and moist and conditions outside are cold (typical winter conditions), moist air is likely to be trapped between the glazed panes and appear as misting. In time given some warm sunshine on the window the misting should disappear.



A unit built to Grade 3 insulation standard is likely to be suited to winter camping



Condensation on a motorhome windscreen can be an issue

Motorhomes often have the drawback of having a large single glazed windscreen and side cab windows, which have the potential to lose a great deal of heat. It is therefore a good idea to insulate this glass area.

Insulated screens can be readily purchased to fit most standard cabs or can be made to measure. Two types are available, those that fit internally and those fitting externally. Internal fitted screens are convenient to fit and easy to pack away in a clean dry condition, whereas external screens can become dirty and wet in use and so more of a problem to stow away. However, loosely fitting internal screens while keeping in much warmth, can allow warm air to reach the inside face of the cold glass, which will result in considerable formation of condensation. External screens should fit snugly around the whole of the glass and with internal heating on the glass will become relatively warm, resulting in condensation. Campervans have problems of their own, sometimes with single-glazed side windows in addition to the cab glazing and even fabric raised tops. Insulation screens for such units may not be readily available but insulation materials can be obtained for DIY provision.

An alternative to insulation screens for windows is a good quality thick curtain to cut off the cab area from the motorhome habitation area, which will also reduce the volume to be heated. Curtains with thermal linings can also be a good additional method used in conjunction with double-glazed windows in all units.



An insulated cover for the cab windscreen can help keep a motorhome snug, external type shown

Ventilation and safety

In order to maintain warmth do not look to shut off all forms of ventilation, especially vents provided for safety reasons. The factory installed drop out vents must never be covered - [see the Safety first section](#). The fridge vents can be restricted in winter (temperatures below 8C) with the use of winter vent covers from the fridge manufacturer that restrict the free flow of cooling air but permit unrestricted venting of exhaust gases.



Proprietary fridge winter covers reduce cold drafts while maintaining essential ventilation

becoming a problem. The use of a container of absorbent crystals is not the answer for when the caravan is in use because of the large quantity of moisture generated and the vents. You would simply be trying to take the water out of the ambient air. The bathroom and kitchen are major generators of moist air and the use of an extractor fan in those locations should help.

Units built in accordance with European standards EN1645 and EN1646 will include a set amount of fixed ventilation even when all windows and doors are closed, but this is not sufficient when normal cooking and washing activities are being carried out.

Condensation can be a problem for mattresses as the body gives out moisture when sleeping. This is why most seating and sleeping areas have slatted bases and ventilation boards where they touch the external walls to allow the circulation of air.

Where people are located in a confined space, especially where washing and cooking is taking place, you are going to have a large amount of moisture getting into the atmosphere. There is only so much moisture a volume of air can hold and where there are cold surfaces condensation will occur.

Condensation

This can cause a build-up of damp making the unit unpleasant to use but also cause deterioration to the fabric of the caravan or motorhome. Good ventilation and heating is the best way to avoid condensation



Some caravans and motorhomes have boards to provide ventilation between the wall and seating

In winter when the caravan walls are cold and the underside of the mattress faces an unheated locker there is a danger of condensation and then mould forming on the fabric. To help prevent this, pull the foam away from the walls and lift it up to allow warm air to circulate underneath during the day. Some units have vent boards to keep foam away from the sides of the unit and vents into bed lockers to allow warm air to circulate. If your mattress suffers badly from underside condensation it can be worth using a [ventilation mat](#).

Awnings

Awnings are a useful way to help keep warm and snug during winter. It is best to use a heavy duty awning. Manufacturers such as Isabella and Dorema produce suitable products classed as winter or all-season awnings. In most cases, winter awnings are porch awnings, but with heavy duty fabrics and strong poles. They also need to have relatively steep pitched roofs to help snow slide off. Additional poles to reinforce the roof can be useful along with strong pegging points and guy ropes to withstand whatever winter weather is encountered. Some manufacturers can supply an awning roof lining to help reduce roof condensation. For further information on awnings see our Data Sheet number 7. ****Hyperlink required to this new DS***

The awning need only be a small one to enable wet muddy boots and coats to be left out to dry without introducing more moisture than necessary into the caravan or motorhome. As long as it covers the habitation door it should also prevent too much heat loss when entering and exiting. Being small means it is easier to pack up and then easier to be able to spread out on your return home if it had to be packed up while wet.

Never be tempted to use a barbeque in your awning due to the high risk of [carbon monoxide poisoning](#).

Cassette toilets

The materials from which a cassette toilet is manufactured are safe to use in temperatures well below freezing. However, the water and additives needed for use in the toilet are liable to freeze. Thetford toilet waste tank additives and rinse aids have a freezing point similar to that of water and hence should be stored inside if possible. The use of Aqua Kem sachets or similar dry products should eliminate concerns for freezing during storage. To minimise the risk of freezing any of the toilet liquids once diluted and in use, make sure the washroom gets its fair share of heating.

Look after your battery power

If you do not have a mains hook-up you need to conserve your limited battery power. With many sophisticated forms of heating, no electrical power means no heating. The exceptions to this are the Truma S range of gas space heaters that do not require electrical power unless you wish to operate them with a blown-air facility.

A solar panel can help, although overcast winter skies and short winter days can mean the output from a large fixed panel is reduced to a trickle. A good size portable solar panel could be used to supplement the fixed panel and track the sun will be more effective. It is important to ensure you have a good quality battery that is fully charged before your outing. Remember, using a caravan mover to move your caravan will use up a considerable amount of your battery's reserves, which is unlikely to be topped up enough by the car's alternator. Cold temperatures also slow down the reactions in the battery's chemistry and result in a reduction in battery capacity.

For longer stays without a hook-up, consider using a generator or second leisure battery. Generators should be chosen for their ability to produce smooth power that will not give rise to spikes in voltage that could damage your electrical system or appliances. Ensure the exhaust from a generator is directed away from the caravan or motorhome (and other units) to avoid the ingress of carbon monoxide and never use inside an enclosed area. If fitting a second battery, ensure it is the same type, capacity and similar age to the existing battery. Also consider that the extra weight will come out of your user payload. Obtain advice regarding the correct wiring and provision of fuses to keep your system safe. Incorrectly wired 12V systems can cause fires.

Tyres in winter

Safety on the road includes having good well-maintained tyres fitted to your unit and tow car and this is never more important than when travelling on wet or icy roads. Ideally during winter months, typically November to March, your motorhome and tow car should be fitted with winter tyres. These tyres are made from a rubber compound designed to avoid hardening as temperatures fall below 7C and so provide better grip on the road in winter.

All-season tyres are a compromise between 'summer' (standard tyres) and 'winter' tyres. They offer higher grip levels during the warmer months than winter tyres and better grip than summer tyres in the winter months. Often these all-season tyres will be marked with an M+S (mud and snow) symbol indicating they provide higher traction on soft ground and melting snow than standard summer tyre tread patterns.



Winter tyres showing the three peaks and snowflake symbol can improve safety in winter but M+S or all-season tyres can help

Whatever the tyres fitted, tyre experts recommend a minimum of 4mm depth of tread for winter motoring and certainly no less than 3mm, even though the legal minimum limit is 1.6mm. If alternative tyres are fitted, all tyres on the vehicle should be changed.

In the UK most roads are kept passable and relatively free of snow and ice during winter months, but in parts of Europe this is not always the case. In certain countries there are mandatory requirements for the use of snow chains or winter tyres and even a minimum legal tread depth beyond the normal legal minimum. These requirements vary with country and time of year so check with the motoring organisations for details before travelling. In particular note some countries will accept a tyre marked with a M+S symbol as a winter tyre, others will accept a winter tyre only if it shows the symbol of a snowflake and three peaks on the tyre sidewall, indicating it meets a specific level of performance in winter conditions.

Check your tyre pressures and tyre tread depth before starting out. Consider installing a Tyre Pressure Monitoring System (TPMS) to help you monitor tyre pressure and temperature.

General touring tips

- Have your vehicle serviced regularly – winter conditions can soon show up any weakness in a vehicle
- Ensure your vehicle engine cooling system contains the correct amount of anti-freeze
- Increase the concentration of windscreen washer solution to prevent freezing and carry a windscreen scraper and de-icer
- Check your tyre pressures and tyre tread depth before starting out. Consider installing a Tyre Pressure Monitoring System (TPMS) to help you monitor tyre pressure and temperature
- Ensure you have sufficient fuel
- Include an emergency kit when touring to include a warm blanket, torch, food and drink rations in case of being stranded on the road. Include a mobile phone and charger
- Soft wet ground or snow can soon maroon a vehicle so include a grip mat and shovel
- Where possible select a site with hardstanding or reinforced grass pitches
- Take extra care and time on the journey to allow for bad weather and keeping your speed right down when the temperature drops to near freezing
- Plan your journey and select major routes wherever possible when snow and ice are forecast. Check traffic updates and take a map for unplanned diversions
- Before setting off for home, drain off your fresh and waste water systems to ensure your unit is not vulnerable to frost damage when left in storage
- Do consider having adequate breakdown and recovery services that are suitable for your caravan or motorhome.



Grip mats and a shovel can prove invaluable

And finally

If this data sheet has not encouraged you to venture out in the depths of winter check out the Club's [Winter Sun brochure](#) and join many Club members wintering in southern Spain and Portugal. By taking the ferry to Santander in northern Spain you only need risk one cold night in mid Spain before you reach a warmer climate.

If you have feedback on our new format Datasheet, please let us know, using our short [Feedback Form](#).



Campers enjoying a some of winter sun with the Club

Glossary

LPG

Liquid Petroleum Gas, a gas sold in cylinders under high pressure in liquid form. At normal temperatures at the top of the cylinder the liquid turns into a gas at high pressure. On passing through a regulator this becomes suitable for gas appliances.

Butane

A form of LPG that is ideal for use when camping in warmer weather. As the ambient temperature approaches zero degrees Celsius (C) butane ceases to gas off. If temperatures are expected to reach 4 degrees C or lower propane should be used. Calor, the largest gas bottled gas supplier in the UK, supplies butane in blue cylinders.

LPG tank

Some motorhomes do not have a gas locker for refillable or exchangeable cylinders, but have a tank located under the vehicle that is filled with Autogas at a fuelling station via a filler cap on the side of the vehicle body. Also commonly known as a bulk tank.

Autogas

Autogas is the common name for liquefied petroleum gas (LPG) as sold as a fuel for cars. It is usually a mixture of propane and butane but is generally suitable for use in winter for caravan and motorhome appliances.

Propane

A form of LPG that is ideal for use in cooler temperatures and essential when camping at temperatures at or below 4 degrees C. Propane continues to gas off down to -40 degrees C. Propane is commonly supplied in cylinders that have some red coloured finish.

EN1645 and EN1646 insulation standards for caravans and motorhomes

Grade 2 rating requires a level of insulation that, used in conjunction with the installed heating system, allows an interior temperature of 20 degrees C to be maintained when it is 0 Degrees C outside.

Carbon monoxide

Carbon monoxide (CO) is a colourless, odourless, tasteless, poisonous gas produced by incomplete burning of carbon-based fuels, including gas, oil, wood and coal. You cannot see it, taste it or smell it but CO can kill quickly without warning. Further information can be found at www.myccc.co.uk/cosafety

Contacts

Web: [The AA](#)
Provider of winter driving advice

Tel: [N/A](#)

Web: [RAC](#)
Provider of winter driving advice

Tel: [N/A](#)

Web: [Continental Tyres](#)
Winter tyre advice

Tel: [N/A](#)

Web: [Traffic England](#)
Major road network traffic information for England

Tel: [N/A](#)

Web: [Traffic Scotland](#)
Major road network traffic information for Scotland

Tel: [N/A](#)

Web: [Traffic Watch NI](#)
Major road network traffic information for Northern Ireland

Tel: [N/A](#)

Web: [Traffic Wales](#)

Major road network traffic information for Wales

Tel: [N/A](#)

Web: [Ventilation Mat](#)

A machine washable, anti fungal, flexible ventilation layer to combat the effects of condensation. Use under mattress or behind back rest cushions. 200cms wide. Fire retardant to BS EN 1021-1 : 1994

Tel: [02392 588 588](#)

Web: [Van Comfort insulating screens](#)

Insulating screens for campervans and motorhomes

Tel: [N/A](#)

Web: [CAK Tanks](#)

Insulating screens and DIY material for campervans and motorhomes

Tel: [N/A](#)

Web: [RoadPro thermal screens](#)

Protective covers for engine compartments, wheels, skylights, windows and mirrors help to protect your vehicle from the elements and, again, insulate the interior against extremes of heat and cold.

Tel: [01327 312233](#)

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