



The Camping and Caravanning Club  
*The friendly Club*

## A guide to towing safely from The Camping and Caravanning Club

# Matching car and caravan



**C**orrectly matching your car and caravan is essential if you are going to be safe on the road. Having enough power to pull your caravan so as not to be a nuisance to other road users is one of the factors to be considered when choosing a car.

Even the smallest of cars will be capable of moving most caravans but to tow them safely will depend upon the weight of both your car and caravan and how well they are matched.

Getting the weight ratio balance between car and caravan is more important than engine power. It is critical to ensure the stability

of your unit.

When you are travelling your unit will be subject to cross winds, buffeting from passing vehicles and uneven road surfaces. The way you load your car and caravan and the speed that you travel will affect how your unit performs during your journey.

Balancing the weight between your car and caravan is the key to towing safely.

Here we offer advice on how you can find out what your car and caravan weighs, how to ensure that your combination is loaded correctly and how to prepare it for the road.

**T**his Data Sheet is one of a series produced by The Camping and Caravanning Club on key camping and caravanning topics.

These are available as downloadable Acrobat files, free to all campers and caravanners.

You can join the Club on-line, or by calling 024 7685 6797, or at any of our UK Club Sites.

**C**orrectly matching your car and caravan will depend on how heavy each of them is when loaded.

The weight ratio between them will determine how stable your unit will be when you are on the road.

In general the heavier the car and the lighter the caravan the more stable the combination will be.

You will need to find the weight of the items you carry and

then decide where you put them in the car or caravan to give you the best overall stability.

### Weighing the car and caravan

Finding the weight of your car and caravan is not always as easy as you may think.

You can find out what your car and caravan should weigh from their appropriate handbooks.

However, these are

### Which weight is which?

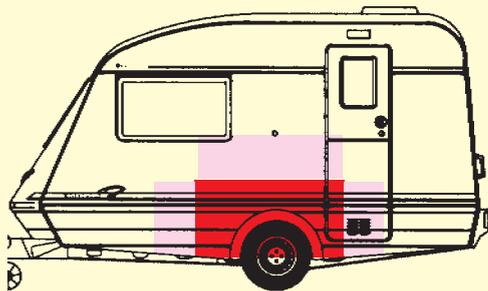
Car and caravan handbooks often refer to several different weights. You will need to know which is which.

- **Maximum Gross Weight (MGW) or Maximum Technically Permissible Weight (MTPW):** The absolute maximum weight that both your car or caravan should individually weigh when loaded.
- **Maximum Allowable (Authorised) Weight (MAW):** The maximum weight that the manufacturer recommends that you load either your car and caravan. This figure will be stamped on the chassis plate or VIN plate. It will be the same or less than the MGW and MTPW. MAW is the unladen weight plus the payload.
- **Unladen Weight (ULW) or Mass In Running Order (MIRO):** The weight of the car or caravan as it leaves the factory and before you put anything in it. In the case of some cars this could also be the same as the kerbside weight. For most cars it is the kerbside weight less the weight of fuel, water and loose tools.
- **Payload:** The maximum total weight of the individual items that you load in to your car or caravan. This is normally the difference between the MTPW and MIRO.
- **Actual weight:** The weight of the caravan when ready for the road. It should never exceed the MAW.
- **Kerbweight (KW):** The weight of your car including all normal oils and lubricants as it leaves the factory, plus a full tank of fuel. It does not include driver, passengers or any luggage.
- **Noseweight:** The weight your caravan puts on the towball of the vehicle.
- **Trainweight:** The maximum laden weight of the caravan plus the maximum laden weight of the towcar. Never exceed the recommended trainweight for the towing vehicle which will be marked on the VIN plate inside the car's engine compartment.

Matching is just as important with people carriers, vans and other vehicles.



# Loading your caravan



It is important to keep weight low down and over the axle. In our diagram above the area for heavy items, such as awnings, is indicated in red, medium weight items can be loaded in the pink area, the rest of the caravan should be used for storing light items only.

only approximate. The actual weight of your car and caravan could vary as much as plus or minus five per cent.

Look for a small plate on the A-frame or on the sill under the door of your caravan.

This will tell you the allowable gross weight and payload that your caravan has been designed to carry.

The easiest way to find out the actual weight of your car and caravan is to take them to a public weighbridge. It will cost between £2 and £10 depending how

the car and caravan are weighed.

Be aware that public weighbridges are designed to weigh heavy goods vehicles.

Cars and caravans are relatively light in comparison. Some weighbridges may be less accurate than others and you may find a variance if you use more than one.

Weigh your car and caravan separately.

Make sure that you get a written record of the weights before you leave.

Another way is to use a portable weighing machine.

At about £80 each it is unlikely that many caravanners will have one themselves.

Your local group of caravanners may have purchased one between themselves and may be prepared to loan it to you.

## Kerbweight

Kerbweight is the weight of an empty car as it leaves the factory plus a full tank of fuel.

This weight is important since it is used as the basis to determine the weight of the caravan you are able to tow safely.

Most motoring and caravanning organisations, including The Camping and Caravanning Club, recommend that if you are new to towing you should restrict the actual laden weight of your caravan to 85 per cent of the kerbweight of your car.

More experienced caravanners can allow themselves to go higher but they should never exceed the car's kerbweight.

The 85 per cent guide is not a legal requirement but a recommendation developed a few years ago by a working group set up by the National Caravan Council. After many tests this group found that 85 per cent of the kerbweight of the car gave the best weight relationship for safe towing.

Many car manufacturers state a maximum towing limit.

This figure has been based on a series of tests towing a trailer up an incline of 1 in 8. Although your car will pull this load it should not be used as the safe towing capacity of your car unless it is lower than 85 per cent of the car kerbweight.

Never exceed the car manufacturer's recommended towing figure or trainweight. You will not only invalidate your car insurance, you could also be faced with an expensive repair bill as well as being unsafe on the road.

## Payload

Payload is the weight of the items the caravan manufacturer recommends you can put in your caravan. It is the difference between the weight of the caravan as it leaves their factory and its maximum allowable (gross) weight.

You will generally find it is not enough when deciding what you want to carry.

The weight of the leisure battery, gas bottles, spare wheel, water and waste carriers, pots and pans, cutlery, bedding and any additional items you decide to carry will all take up most of the payload.

It will also include any fixtures, like an oven, that you add to the original specification.

You should never exceed the manufacturer's recommended payload

and gross weight.

As a general guide basic items for two people will weigh a minimum of 100kg with a further 25kg for each additional person.

You could weigh each item before you put it into your caravan including any water that you need in your toilet or holding tank.

Heavy items, like an awning, are best carried in the car.

Remember though, there is a limit that your car can carry. Don't overload it.

Putting too much weight in the boot will compress the car's suspension. Lowering the back end too much will affect the car's road holding ability which in turn will affect the unit's stability.

Similarly loading up the roof rack will raise the car's centre of gravity and this can also affect the stability of the combination.

## Loading your caravan

Positioning the items you carry inside the caravan will affect how stable your unit will be.

Heavy items should be placed around the axle and as low down as possible.

Lighter goods

## What does it weigh?

	Kgs
Television	8.5
Wheel chocks	4.3
Four China mugs	1.1
Water carrier	3.2
Wheel clamp	15.0
Spare wheel	14.0
Iron	1.4
Hitchlock	6.0
Battery	15.5
Step	3.0
Two sleeping bags	6.0
Awning	40
2x7kgs gas bottles	30.0
Water per litre	1.0



## Not just caravans

All of the information on these pages applies not just to caravans, but to other towed camping units too.

Modern trailer tents, particularly American imports, can be very heavy and everything that we have said about caravans applies to these units.

Smaller trailers may or may not be fitted with brakes. There is no legal obligation to fit brakes if the weight of the trailer is under 750kgs or half the weight of the towing vehicle, whichever is less.

This is the law, but the Club strongly recommends that anything but the smallest trailer should be fitted with brakes.

## Every weekend thousands of Club members tow their caravans to sites and meets in perfect safety



should be spread evenly along other areas of the caravan with the very light items being stored in the lockers at the higher level.

Placing too much weight at the front will add to your noseweight. Too much at the back will cause the 'tail to wag the dog'.

In other words, the caravan will take control if you find yourself in a snaking situation making it very difficult for the driver to keep control.

### Noseweight

Noseweight is the downward load on the tow ball of your vehicle.

Car and caravan manufacturers both give noseweight in their manuals, although the coupling rating is normally the maximum allowed for

the caravan. This is either 75 or 100kgs. A caravan noseweight of around seven per cent of actual laden weight is ideal. You will need to check each of them when matching your car and caravan. Always adopt the lower one of the two.

It is generally between 50 –100kgs.

Exceeding either will add additional strain on the car or caravan chassis and could result in damage.

Measuring the noseweight of the caravan can be carried out by using a gauge or spring balance obtainable from most accessory dealers.

A much cheaper method is to use a pair of bathroom scales and a short length of broom handle.

With the caravan brake fully on and the

steadies raised, lower the coupling on to the bathroom scales using the broom handle.

As soon as the jockey wheel lifts free from the ground read the weight off the scales. Make sure that the caravan is level while taking the reading.

If you don't know what the noseweight of your caravan should be then as a guide ensure it doesn't exceed seven per cent of the actual laden weight of the caravan.

Adjusting the position of items inside on either side of the axle will help you achieve the ideal noseweight.

Generally speaking, the higher the noseweight, without exceeding the car and caravan's limit, the more stable your unit will be.

### Balancing the two

Making sure that both your car and caravan are well matched and loaded correctly will ensure your safety when travelling.

When you couple up your unit it should be level. If it is slightly nose down don't

worry but never tow with the caravan nose upwards.

You are always likely to experience some snaking and pitching. It isn't possible to eliminate them altogether.

A stabiliser will help to dampen these effects but it should

never be used to overcome instability as a result of incorrect loading.

Experience will determine your reaction. Keep your speed down and be aware of the vehicles around you and you will reach your destination safely.



### What does my caravan weigh?

One of the many questions we are asked is how do I find the weight of my caravan?

Your caravan handbook and the plate found on the A-frame or the sill under the door will tell you the allowable gross and payload weights that your caravan has been designed to carry. These should never be exceeded.

Taking your caravan to a public weighbridge is the best way to find out it's weight. You can get a list of weighbridges from your local authority's trading standards, or weights and measures department. It will cost between £2 and £10 to get the caravan weighed but make sure that you uncouple your car first otherwise you will get a false reading.

Portable weighing machines are available but are generally less accurate. They weigh each of the wheels in turn, including the jockey wheel, to give the total weight.

### How to calculate 85 percent of the kerbweight of your vehicle

To find out what weight your car should tow find the car's kerbweight in the handbook. Divide this figure by 100 and multiply the result by 85.

Car kerbweight = A  
 A divided by 100 = B  
 B multiplied by 85 = Towing weight of vehicle